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ROD & Custom

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editorial . . .

What's Wrong With American Cars?

NOTHING ! At least that is the way I feel. Sure, maybe they *don't* handle like a $15,000 Ferrari nor do they have the weight to horsepower ratio of a Cooper but, let's face it, they *do* have their good qualities. They don't give you a spine jarring ride, you can get more than just a small suitcase in the trunk compartment (how many foreign cars even have one?), and it is possible to take more than just one other person for a ride — comfortably.

Each of the some nineteen makes of American cars have their shortcomings, naturally, buf I'll bet I could pick a Porsche apart, too. Our cars are built to satisfy the demands of John Q. Public so why is this same public unhappy with them? They're not! At least, the greater majority isn't. The only grumblings come from the armchair critics and they form the decided minority. Quite possibly they know what they want in a car but I'll bet a lot of them don't know how to go about attaining it nor do they realize the complications involved.

Our manufacturers and their designers and engineers realize where their cars fall short of perfection but so many things enter into the correcting of some of these faults that it sometimes takes years to overcome them. One of the biggest gripes about American cars is that they are thrown together a la mass production and proper alignment of body components is practically unknown. Unless, through pure luck, one particular car happens to line up perfectly.

Is anything being done to correct this problem of misalignment? Certainly! During a recent trip to Detroit we had a long talk with an engineer from one of the leading companies. He told us that American cars are assembled with certain allowable body tolerances. Some makes are allowed to pass inspection with an alignment tolerance of plus or minus a *quarter of an inch*. This seemingly small amount can cause a larger gap in a door than you would imagine. Let's take, for instance, the front door of a car. If the door is *back* the maximum allowable amount and the front fender *ahead* the same amount, the resulting gap between the two would be half an inch! If the assemblers were to spend time realigning the door and the fender the cost for the additional time required would be prohibitive and the assembly line would be held up. Company representatives will tell you that if you don't like a car with large alignment tolerances, spend more money and get a more expensive car with smaller tolerances. The fact that most American cars are built in apparently a slipshod manner is the reason that they are as cheap as they are.

Cars are built by what is called the "top frame construction" method. This indicates that the floor, the cowl, the turret top and the quarter panels are set up in a jig and welded into one solid unit. In the case of a four door sedan the center door post is also welded in while the body is being fabricated. Now, if for some reason the door openings are too big, or too small, for the doors, the result is improper alignment. Automotive engineers knew the answer to this problem a long time ago, but the cost of altering present production methods was so great that they let the situation ride as long as they could. When enough complaints reached the factories, though, the needed change was met as is the case when shortcomings become recognized. This new method of construction is called the "side frame construction" method. In this case, the doors are set up first in a jig and the various major body components fit around them, then welded into position. The result is almost perfect door alignment.

This change will allow the body tolerances to be cut approximately in half. The alignment of deck lids, hoods and so forth is also receiving attention and, in a short time, the critics will have to find something else to complain about.

Whether the "side frame construction" method will be advertised to any great extent or whether it will go unannounced so as to not draw undue attention to this former drawback remains, at this time, unknown. Watch for this improvement, though, it will make its appearance on at least one make of the 1954 models and on several more by 1955.

Instead of calling down American manufacturers, let's try to help them. If you have any little personal gripes about your car (if it is of fairly recent make — '49 or up) write a line or two about it and drop it in an envelope and mail it to us. When we accumulate enough of them we'll set aside a page or two in ROD & CUSTOM and try and draw Detroit's attention to them.

Correspondence

CONCERNING THE "SQUIRRELS"

There are probably more "squirrels"— with due apologies to the furry variety — per capita in South Haven than in any comparable sized town in the U.S.A., and I can think of no better way of whittling them down to people size than to show them up for the low-grade morons that they are.

As a staff practical nurse on the surgical floor of the South Haven Hospital I see much of the results of such driving. Some are D.O.A., some scarred for life and some — probably the worst of all — set free to "squirrel" again. They carry no insurance on their cars, own nothing that could be attached, or sued for, to pay damages to the innocent victims. Most are under legal age anyway, and, as is usually the case in any accident, the driver is the least hurt of all. If another car is involved the only action open to that owner is a suit against the parents of the "squirrel". If they also have nothing, then what?

You may wonder what a practical nurse is doing with ROD & CUSTOM. Your editorial was given me by my son who, at 21, is ready to give his generation full blame for the high insurance rates and general dim opinion of "squirrels" but has high hopes for the kids now growing up. Incidentally, he is a better driver than I am and I think I'm pretty good!

Mrs. Mabel M. Anthony South Haven, Mich.

• *We only wish that all the younger drivers could visit our hospitals and see the results of "squirreling". As long as there are cars, there will be "squirrels" but with a constant pounding directed against them, we hope that they will be kept to a very bare minimum.*

... AND STILL MORE

You sure stuck your neck out in your July editorial. It was good, but some people might get the wrong idea (including me). They might think that you don't like people that drive '40 Chevys and wear visored caps. I hope this isn't true because I have such a visored cap and have no particular dislike to '40 Chevy sedans. I'll grant you, though, that my hat doesn't have such "goodies" as buttons on it, and I wouldn't have them on it.

Thanks for a very good magazine and keep up the editorials, they're the best! They might step on some toes but the toes they step on need it.

Bob Moore Alhambra, Calif.

• *We don't mean to imply that '40 Chevys are driven only by "squirrels", there are undoubtedly thousands of these fine cars still in use and the greater majority of the owners are probably fine, upstanding citizens. If you'll look closely at the editorial, Bob, you'll see that "squirrels" drive anything from a Cadillac down. One thing we can't understand, though, is why the visored cap?*

CROSLEY, PLEASE

Do you have any information on the reworking of a Crosley? The year and model would make no difference. I would certainly appreciate whatever information you might have around.

A/3C Robert Eilenberger Chanute, Ill.

• *We dug clear to the bottom of our files, Bob, but didn't turn up anything. Our companion magazine, HOP UP, featured a restyled Hotshot in the July issue, though, on page 40.*

TECH TIP REPLY

While looking through the June issue of R & C I noticed a letter in the Tech Tips column from an unhappy reader in Washington. He seemed to be having painting problems and couldn't decide what was wrong. I have seen the same situation several times and found it to be caused by silicone contained in some auto polishes. The Senour Martin Paint Co. puts out a good cleaner that is guaranteed to remove silicone from paint and metal. It should, of course, be applied *before* a car is sanded.

Harold H. White Key West, Fla.

• *Thank you, Harold, and I'm sure reader Kennedy will thank you, too.*

NAVY READER

I enjoy ROD & CUSTOM very much and when I ran across an article on restyling a Chevy I immediately subscribed to your magazine.

I haven't a car right now, since I'm in the

Navy, but when I get out I'm going to get a '51 Chevy and do a little reworking to it. I don't want a radically changed car — just something that will suit my tastes a little better. I feel that your magazine will be of great assistance to me in deciding what to do and what not to do.
W. D. Oblander FPO, San Francisco, Cal.

CHEVMOBILES

In your June issue I noticed in your Technical Tips that you mentioned that few installations of Olds engines in Chevys have been found. Up here in Montana there is at least one such conversion. It is a 1951 Chevy Bel Aire powered by a 1951 Olds Rocket engine. I wonder if you would be interested in pictures and a story on the conversion.
Jack Foster Great Falls, Montana

• *Thanks, Jack, but we found one right here in Glendale. For the complete story turn to page 8.*

ONLY READER — IN LYBIA, THAT IS

Your new magazine, ROD & CUSTOM, is very good. So far I am the only one who has received it over here, but I won't be for long. Please keep up the good work.
A/1C Harry Bohannon Tripoli, Lybia

• *Are there many rods or customs over there, Harry?*

SIX CYLINDER CAR CLUB

Organized to promote safety among the youthful car owners of the Southern California area and sponsored by the American Legion Post 729, a new car club has been formed and is called the Glendale VI's. The club is looking for additional members and the only qualification is for their cars to be a six cylinder of any make or model. At present there are 22 active members and weekly meetings are held at 421 Oak Street, Glendale, Calif. Anyone interested in joining the club should contact Don Cullinan, president, at the above address.
Jim Cook, Treas. Glendale, Cal.

TEXAS FAN

I enjoy your magazine very much and so far have no complaints. Just keep up the good work.

I hope you don't consider boys as being the only hot rod lovers. I'm a girl and a very enthusiastic car fan.

In the very near future I plan on fixing up a car of my own and show some of these boys up.
Ella Lou Kates Fort Worth, Texas

• *More power to you, Ella.*

V8'S VS 6'S

Keep the articles coming about Chevrolets, but make the write-ups longer. I realize that we Chevy owners are outnumbered by Ford and Merc owners who rework their cars but we are steadily increasing.

I own two Chevys myself. A dechromed and lowered '41 and a '32 coupe that I'm working on.
Eugene Tischhouser Appleton, Wisc.

ANYONE WANT TO JOIN A CLUB?

We live in Miami and are very interested in hot rods and custom cars. We are too young to own cars but we both learned to drive a long time ago. We wonder, if you publish this letter, if some enthusiasts our own age (14) would write to us. Possibly we could exchange pictures of cars and start some kind of a Pen Pal Club.
Jack McClintock 1040 S.W. 72 Court,
Donald Carlisle Miami, Florida

• *Maybe so.*

MEMORIAL CAR RACE

Thank you very, very much for the outstanding job that you did for our Road Race Celebration. I am very happy, of course, that you intend to write an article on the event. The people of Corona will be overjoyed, I am sure.

Thanks once again for your wonderful cooperation and all your hard work. Only through the help of wonderful people like yourself were we able to hold a successful celebration.
Mr. Don Burns, Mgr. Corona Chamber of Commerce, Corona, California

• *Please, Don, you're making us blush. We were honored to be selected to do the job. Our only hope is that next year's event will be as great as the one just passed. In case anyone is interested, the full story of the event will be found on page 18 of this issue.*

JUST WHAT THE RODDERS NEED

Just finished reading the July issue of R & C. I think your magazine is what the rodders in the Armed Forces need. You describe local events and that means a lot to us away from home. I also know that my club at home, the Oak Park Timing Association, of Oak Park, Illinois, is well pleased, too. Keep up the fine work and lots of luck to you.
Rod Peterson Aglin A.F.B., Florida

• *Our Publisher, our Editor, our Managing Editor, our Technical Editor, our Advertising Manager, our Photographers and the office help all join in on a chorus of, THANKS.*

(Continued on page 66)

Building a CHEVMOBILE

Installing an Olds engine in a Chevy presents a problem

Photos by Poole

A GOOD MANY letters have crossed our desks requesting information on the installation of either a Cadillac or Oldsmobile engine in a Chevrolet. A diligent search soon uncovered several such installations, but as we commenced to get the specific information from one of the erstwhile enthusiasts a breathless underling came hurrying up with the earthshaking news that he had uncovered just what we were searching for — with the body removed. Quickly realizing the magnitude of the photographic possibilities we hurried off, camera in hand, to see for ourselves just what was what.

We had our doubts when we first heard our helper's words but, upon reaching the designated location, there it was in all its glory. In the center of the two car garage was a '41 Chevy chassis with a beautiful Olds Rocket engine reposing where the tired old straight six used to be. But — wonder of wonders — behind the engine was, *not* a Chevy transmission but, a big hefty Hydra-matic unit. While most such engine switches merely require the use of a simple adapter ring to join the engine to the transmission this particular switcheroo really went all out. Because the decision to let the car shift for itself resulted in a lot of complications let's go back a bit and begin at the beginning.

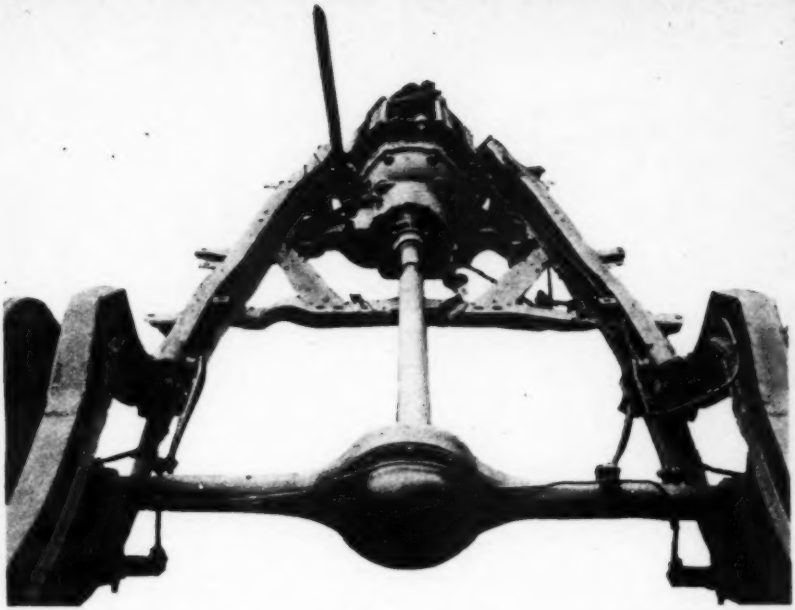
The first step was to acquire an Olds engine and transmission and to go through each and rebuild them to better than new condition. A decrepit looking '41 Chevy was unearthed and measurements taken to see if the engine would fit in the somewhat small engine compartment. These first measurements proved beyond the shadow of a doubt that such an installation was quite feasible (or so it was hoped) so the next step was to remove the hood, fenders and grille. Then the old six cylinder sewing machine and its transmission were taken out and donated to a grateful junkie.

The second operation was to take measurements of the relationship of the body to the frame and record them where they could not be misplaced — on a ceiling rafter. Then, various photographs were made to visually show the different arrangements of the body and frame components and of the steering gear. These photos were used for reference quite frequently during subsequent operations and this venture proved to be well worth the trouble.

The entire body was taken off the chassis and set over in one corner of the garage to gather dust for a while and to provide a home for lonely spiders. The frame was then stripped of all unnecessary brackets (exhaust pipe mountings, Chevy engine mounts, etc.) and was steam cleaned to get rid of the 12 years' accumulation of grease and dirt of which there was an overabundance.

While the overall length of the Chevy and Olds engine and transmission components are roughly the same, the proportions are quite different. The entire length of the Chevy units is comprised of about two-thirds engine and one-third transmission while the Olds units are divided approximately fifty-fifty.

This fact resulted in the consideration of either of two alternatives. One: install the engine and transmission without shortening the driveshaft and leave the engine sitting over the front suspension with the fan cut-



View from rear of chassis shows completed installation of engine. Big engine nestles snugly between frame rails. Center crossmember has been moved rearward 17". At time this photo was made the steering had not been relocated.

ting holes in the radiator; or, two: shorten the driveshaft so the engine would be positioned back against the firewall. The latter was decided upon for two reasons. To have a neat appearing engine compartment and to place the weight rearward to aid whatever handling qualities the completed car would have. By measurement and by reference to the photographs it was finally decided to cut 10½" from the driveshaft.

Adequate clearance is still maintained between engine and firewall despite rearward location. Interference of frame with exhaust is expected.

The next noteworthy step involved the shortening of the driveshaft and its housing. The Chevy driveshaft consists of a hollow tube with provision at each end for attachment to a splined shaft. For this reason one end could not be cut off and the end remachined, it was necessary to cut the shaft through its center—remove 10½" of its length—then weld the halves back together again. The housing itself had to be reworked in the same manner before the components could be reassembled and secured to the differential case.

Everyone had been dreading the universal joint problem but, at last, it reared its ugly head and demanded that it receive the attention it deserved! The problem lay in the fact that Chevrolet uses a closed driveshaft while the Olds shaft is exposed. Many possible alternatives were considered but were discarded as soon as they proved impractical. (One such possibility was the use of an Olds rear end assembly but this would have meant the addition of radius rods, coil springs and on Olds rear crossmember. A second sugges-

"It fits like a glove" might be said of floor access hole to Hydramatic transmission. Floor remains unaltered, hole cover clears by 1/8". The slot in upper left corner of photo allowed steering column to drop down and clear engine.

tion was the placing of the Chevy body on an Olds chassis.) It was finally decided to design and construct an addition to the rear of the Hydramatic casting — a housing that would both contain the U joint and provide a grease tight slip joint for the ball on the end of the Chevy driveshaft housing.

The universal joint itself was a masterpiece of engineering — or so it seemed to the builders. The front half of an Olds universal and the rear half of a Chevy universal were joined by a Chevy trunnion. Simple? It may seem so to the casual observer but not to those concerned with the engine installation. (It was practically decided several times to discard the Hydramatic unit and bolt the engine to a Chevy transmission using an adapter ring, but someone always held out against the idea. *That's too easy!*

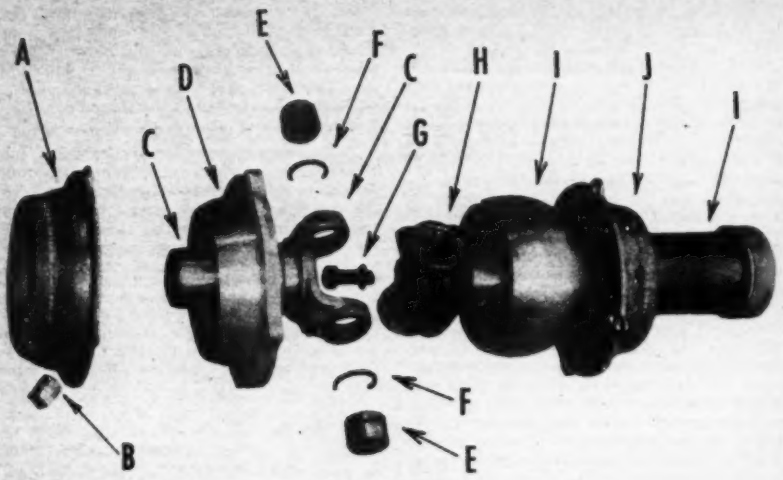
This mere rearrangement of stock components resulted in several trips to the local machine shop as well as to the nearest Chevy and Olds agencies. The Chevy U joint yoke employs trunnion bushings, held in place by lock rings, while the Olds yoke uses roller bearings. The roller bearing cases are held in position by steel caps secured to the U joint yoke by bolts. As soon as the various pieces were obtained, an attempt was made to join them together — to no avail. It was discovered that the inside diameter of the Olds bearings was *smaller* than the outside diameter of the trunnion bearing surfaces. As soon as this had been ascertained it was a simple matter to machine the opposite sides of the trunnion down to the required size. Again an attempt was made to unite the pieces and this time the undertaking resulted in success. The unit was slipped over the exposed end of the Olds transmission shaft — everything O.K.— then it was tried on the Chevy driveshaft — O.K.

At this point someone came up with a brilliant observation — a U joint must be secured at one end or the other so that it cannot slide to and fro on the splined shafts. It must, though, be capable of sliding on either the driving or driven shaft to allow for up and down rear end motion. The easiest way out of this dilemma would have been to weld the U joint to either shaft but this would not have been a very practical operation. The unit might have to be disassembled someday. With the thoughts of several minds being channeled along these lines the following brainstorm soon resulted. A hole was drilled into the end of the Chevy driveshaft and a tap run into it. Someone dug up the proper sized bolt and a nice big washer and the experiment was tried and found to work according to plan — after the washer had been welded to the inner end of the Chevy yoke.

This beautiful engineering feat was laid temporarily aside and work commenced on a suitable U joint housing. As was mentioned previously, the housing would have to have provision for the torque tube to pivot up and down as the rear axle rode over uneven surfaces and to also be capable of containing a lubricant.

The forward end of the Chevy torque tube housing still retained its usual stock parts — the ball slip joint and its retaining cap. Another retainer was disclosed at a nearby wrecking yard and a measuring tape was brought into play. By uniting the two ball joint retainers — face to face — a bulbous-looking housing resulted. Provision had to be made, now, to secure the new retainer to the back of the Hydramatic unit. The net result was a steel collar that was brazed to the end of the Hydramatic rear casting and to the end of which was welded the new retainer. This provided an adequate housing and it also contained the stock Chevy grease seal so the lubricant couldn't leak out. The only remaining step was to drill and tap a hole for a fill plug where it could be easily reached from under the car.

To make sure that everything was as it should be a last bit of measuring was done before the engine was swung into place. Not until then was it found that the U joint housing was not quite large enough to contain the U joint! At this point it was almost unanimously decided to give up the under-



A—New '41 Chevy ball joint retainer. B—Housing fill plug inserted into retainer. C—Olds front U joint yoke. D—Bronze transmission replacement ring. E—Olds universal yoke bearing case. F—Chevy yoke bushing lock ring. G—Bolt to secure U joint to Chevy driveshaft. H*—U joint yoke with stock trunnion. I*—Ball slip joint. J*—Ball slip joint retainer.
* Stock '41 Chevy parts.
All Oldsmobile parts are year 1949.

taking and build something a little less complicated—say an Allison powered rail job. One of the more thoughtful instigators held out, once again, and the crew dutifully trooped down to the Chevy agency to have a heart to heart talk with the parts manager. As soon as he heard that the housing, so ingeniously contrived, was not long enough to surround the U joint he disappeared into the labyrinth of the parts bins and soon reappeared holding a small square box in his hand. With a sly smirk on his face he slowly opened the carton while the group, panting with excitement, gathered around watching and waiting. He finally pulled forth a bronze colored ring of about ½" thickness with the simple statement that this would solve the seemingly insurmountable troubles.

It turned out that the National Machine

The universal joint and its housing presented quite a problem. After a good many difficulties had been overcome, the result looked like this. "A" in the photograph is the stock Hydramatic rear bearing retainer. Part "B" is a machined collar brazed to the Hydramatic casting. Part "C" is a '41 Chevy ball joint retainer that is welded to the collar. "D" is a bronze spacer that provides additional length to the housing. "E" and "F" are the stock Chevy ball joint and retainer. Crossmember has been moved rearward enough to provide access to the new housing.

Works, Inc., manufactures a replacement ring for the rear of some Chevy transmissions. This ring (part #C-48-A) contains a machined surface, against which the ball housing can ride, as well as the necessary four mounting holes. When this spacer was placed between the two ball joint retainers it was found to provide just enough added length to the housing. Just to be sure, the U joint was slid onto the end of the Olds transmission shaft and the housing bolted around it. Fine and dandy – until some killjoy attempted to rotate the U joint. It turned a few degrees then it stopped and not even the trusty pipe wrench, hopefully brought into play, could make it turn any further.

The whole thing was disassembled for the umpteenth time and it was found that the retaining cap bolt heads on the Olds universal yoke were coming in contact with the newly inserted spacer. It all boils down to a simple statement – the housing did not have a large enough inside diameter for the U joint! Again thoughts were directed toward a rail job while someone even went so far as to begin searching for Ford parts from which to construct it.

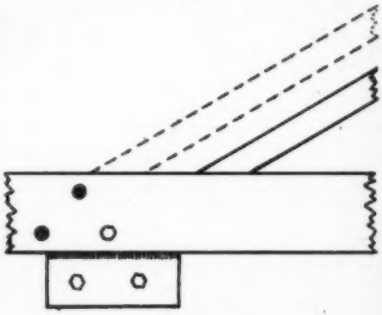
While one underling was wrestling with a Ford rear end and another went to the telephone to order the Allison engine, a third grabbed up the U joint and took off in the direction of the machine shop. Less than an hour later he returned and grinned a wide, toothy grin. Humming softly to himself he inserted the U joint in the housing then casually twirled it 'round and 'round.

While he wouldn't divulge his secret to his cohorts he did take us into his confidence and explained just what had been done. It seems that the Olds trunnion bearing cases are held in the yoke with the forementioned caps and bolts while the Chevy bushings are held in by lock rings. The simplest answer for the problem of eliminating the bearing retaining caps was to machine a groove into the Olds bearing cases and slip on a couple of Chevy lock rings. Result? No protruding bolt heads.

The order for the Allison engine was cancelled while someone hooked up the chain hoist and began raising the engine. As soon as it was swinging precariously from the overhead beam the chassis was rolled under it and the engine lowered back down. It soon nestled nicely between the frame rails but the frame center crossmember held the Hydramatic unit a good four inches above the driveshaft. Before the smiles of satisfaction could disappear from the faces of the hangers-on, someone grabbed a cutting torch and did away with the rivets holding the crossmember in position. The crossmember dropped to the floor with a clatter and the character on the operating end of the chain hoist continued his work. The engine was lowered the remaining distance – until the transmission lined up with the driveshaft. With enthusiasm running high, many busy hands soon had the troublesome U joint and its housing in place while a small child – belonging to some unfortunate neighbor – began filling the housing with grease.

In due time the three engine mounts (one front and two rear) were fabricated and welded to the frame. It was kept in mind, all the time, that the engine must line up with the angle of the driveshaft thus preventing the U joint from having to revolve at an angle. This done, the engine was bolted in its final resting place.

It was decided, at first, to relocate the crossmember 10½" aft of its former location but this would place it directly under the U joint and make any necessary work a little



The steering assembly was moved back & dropped down, by utilizing one of the original holes in the frame and by drilling two new ones in a bracket welded to the under side of the frame.

difficult. An additional 6½" was decided upon – a rearward movement of 17" altogether – and the garage was soon filled with sparks from the arc welder.

Long before, some thoughtful person had removed the steering gear so no one could use the chassis as a coaster and go careening precariously down some nearby hill. A hurried search soon brought forth the temporarily misplaced steering assembly and it was bolted into place. Wonder of wonders, it fit in its former place and the mast jacket – steering column housing to the uninitiated – cleared the engine block by only a few scant fractions of an inch. Some bright young flunky soon made the brilliant observation that the engine was still partly disassembled and, when the heads were installed, the mast jacket would no longer clear. After binding and gagging the terrified observer and depositing him bodily behind the cobweb cov-

(Continued on page 65)

LET'S ORGANIZE A CAR CLUB

Helpful hints for forming a club

IN VIEW of the many letters we have received from readers requesting information on the forming of an auto club, we have done a little research and dug up what, we believe, is the proper way such an organization should be founded.

The most important prerequisite, of course, is that there be a sufficient number of enthusiasts within a given locale to make such a venture worthwhile. Whether all the members-to-be own cars or not is not such a necessary qualification as it would seem to be. As long as everyone is profoundly interested in the formation of such an organization should be qualification enough. Later on, any car-less members can either build or buy a car, singularly or jointly.

Someone should act as a temporary leader of the group until a regular meeting place has been decided upon. He should also see that the instigators of the club become charter members. The temporary head of the group, together with the charter members, must decide on a theme or purpose for their club. This is a necessary item for it provides a basis from which members can interest non-members in the organization and, possibly, induce them to become members themselves.

If possible, owners of rods and customs should be segregated into individual groups because there are generally conflicting ideas between the two groups. However, if the particular locale does not provide any great number of reworked cars of either category, a well planned organization should be able to take care of members having differing ideas or opinions.

Any club, regardless of its scope, size or methods, must have officers. The President, of course, should be chosen first by the ballot method of voting. With a definite and appropriate leader to call meetings and to appoint junior officers, work can then continue as far as organizing committees, seeking publicity, deciding on requirements, etc., is concerned.

A Secretary-Treasurer should be chosen secondly. His job is to take care of whatever club dues might be forthcoming and to record such data as is pertinent to the formation of any new group.

A third officer is needed to plan club activities and to notify all the members of the dates and places of such get-togethers. A record should also be kept by him concerning the names, addresses and other necessary information concerning each and every member.

A club cannot abide by rules unless there are rules to abide by, naturally, so it is important that a list of Club Rules be drawn up. This assignment should be outlined and given to a special committee chosen by either the President or the Secretary-Treasurer. The items that should be set forth in the list of regulations are the requirements for membership, the day of the week and the place of regular club meetings, the prescribed duties of the various officers and the amount of the monthly, or weekly, dues. At one of the initial such regular meetings, a club name should be decided upon. The name should be concise and no indication of dangerous driving should be given. Unappropriate names are such as: "The Daredevils" or "The Speeders" to list a few. To be accepted by the public in general, a name should be chosen that indicates safety or courteousness.

The decision for a name can either be left up to the President or voted on by the members. This can either be done by secret ballot or openly, whichever the members want.

All of the members should be amiable, likeable persons who are willing to join into club activities and to pool their resources, if necessary, if one of the other members requires assistance of one kind or another. The members should all draw up a list of their personal tools and equipment and give it to one of the officers who would keep a record available of what all is on hand.

A garage is a necessary item for any car club and if one of the members does not have one that can be made available to the club, a check should be made of the surrounding neighborhood to see if one is available for rent or lease. If good intentions are proven, possibly some kind hearted person would be willing to donate an enclosed area where cars could be jointly constructed.

A committee should be chosen to check with the local speed shops and/or auto

(Continued on page 64)

There's a good reason for calling it . . .

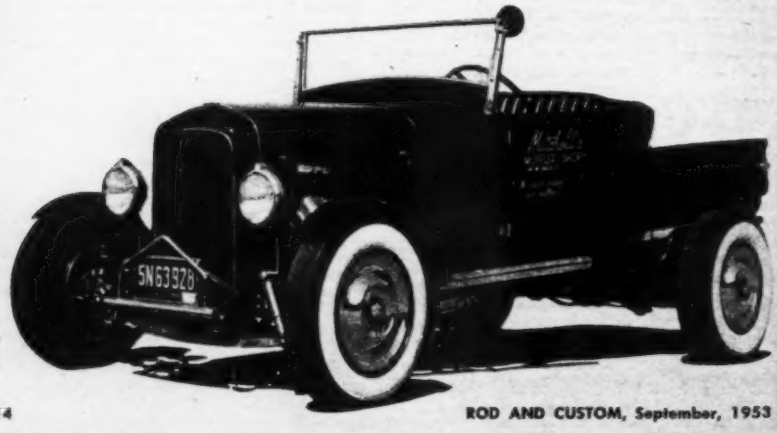
Photos by Poole

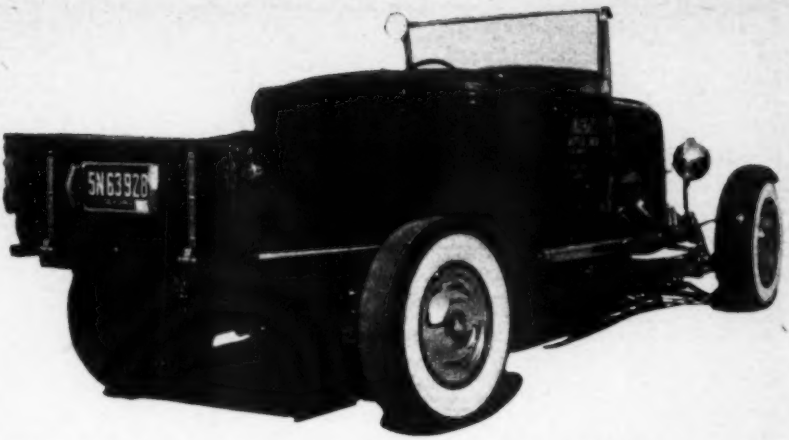
Mitch's BOMB

HERE IS a rapid little rocket that is nearly as much Oldsmobile as it is Ford. The cute little jewel belongs to Dave Mitchell, of Mitchell's Muffler Shop in Pasadena, Calif., who built up the car for several reasons. First of all, he wanted good, reliable transportation and, being a rod fan from 'way back, a roadster was the only thing that would suit him. Second, owning a muffler shop requires the use of a truck so he placed a '29 A pickup bed on the back of the car and now uses it for carrying parts to and from the shop. Thirdly, he had a great deal of respect for the new Olds Rocket engine and its Hydramatic transmission so he incorporated all of these features into one car, ending up with the results shown here.

Work was started, originally, soon after the war ended and, putting his spare time to good advantage, Mitch eventually had the car in running condition. Its motive force, at that time, was a good, big Mercury engine.

The frame is from a '29 A as in the front half of the body and the doors. The usually short cockpit was lengthened by removing the rear of the Ford body and replacing it with a deeper, '25 Studebaker touring car back end. This project required the services of Link's Custom Shop who did such a beautiful job of installation that it is next to impossible to tell that the back of the body is not all Ford. The frontal appearance was





Rear of body is from '25 Studebaker joined to Model A body just behind the doors. Pickup bed is reworked Model A. Body is not channeled so it has adequate room for driver and passenger.

dominated by the usual '32 radiator shell and by the use of a dropped axle, tubular shocks and chromed headlight brackets.

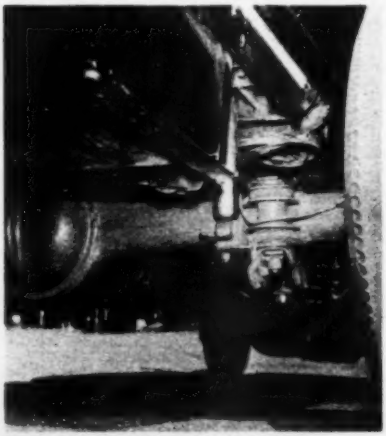
Mitch became interested in the possibilities of Oldsmobile 88 equipment soon after its introduction but it wasn't until early in 1950 that he obtained a Rocket engine complete with its Hydramatic transmission. The Merc engine was taken out of the car and, after a good bit of measuring and fitting, the new engine was put into position — but not until the firewall had been recessed approximately five inches. This allowed the engine to sit farther aft than the Merc had, thus keeping as much of the weight off the front wheels as possible. The problem of hooking up the drive line was neatly eliminated. The entire Ford rear end, springs, radius rods, driveshaft, brakes and wheels were discarded and Oldsmobile parts put in their place. The driveshaft had to be shortened a considerable amount and mounts placed on the frame for the Olds radius rods.

An unusual feature is Mitch's use of rear coil springs — the same as on an Oldsmobile. The usually high coils were cut down, both because the rod carried far less weight than an 88 and because the use of stock springs would have placed the upper spring mounting pads somewhere in the vicinity of the pickup bed cover!

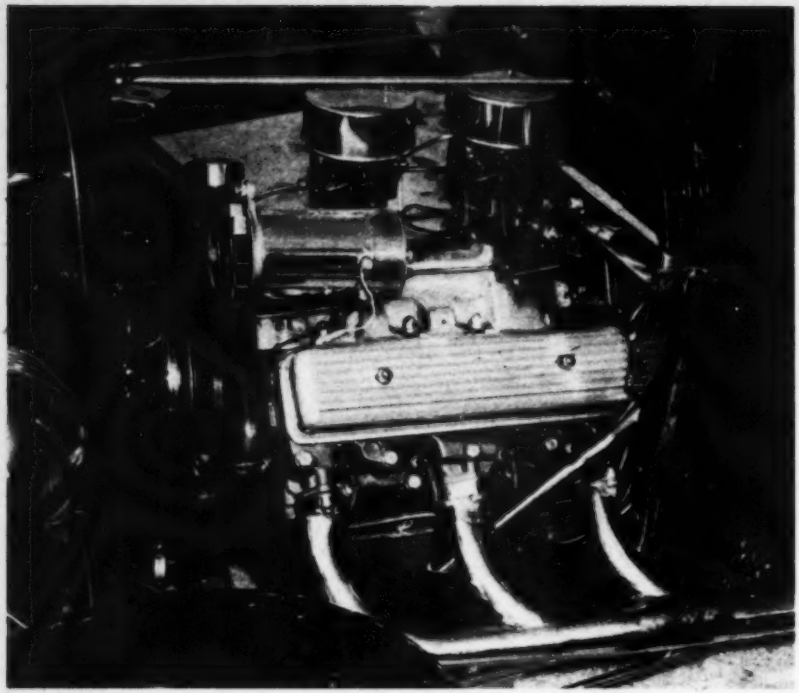
With the engine set back partly under the firewall, Mitch was glad he had added the deeper Studebaker rear body panel. Moving the engine back caused the floor to be moved aft, also. This would have resulted in a rather cramped cockpit if the body changes had not been made.

The front suspension assembly remains the same as it was previously — Ford. The dropped axle is chrome plated as are all its associated parts; drag link, tie rod, radius rods, spring leaves, U bolts, shackles, spindles, spring perches, shock absorbers, pitman arm, rear radius rod supports and all nuts and bolts.

The frame itself is a thing of beauty, too. All the unused holes have been filled and fillets built up between the necessary crossmembers and brackets. The roughly welded

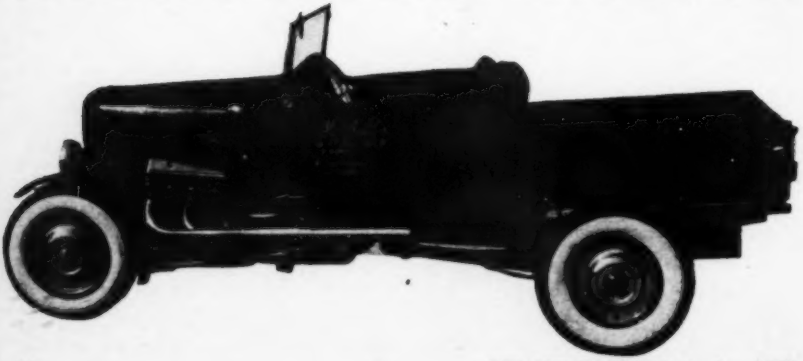


Worm's-eye view of rear end set up surprises the casual observers. Entire assembly is Oldsmobile with the driveshaft shortened. The rear springs are coils that have been considerably cut down.



The Olds 88 engine was squeezed into the engine compartment with no little difficulty. To put weight rearward as much as possible, firewall was recessed five inches. Note the fine headers.

Overall shot of Mitch's Olds Ford pickup shows fine workmanship throughout the car. White walls, black lacquer paint job, red trim and a lot of chromium make the car outstanding wherever it goes. "Rocket" engine and automatic transmission give the fleet little car flashing acceleration.



fillets and the filled holes were filed smooth and the whole frame black lacquered.

Being in the exhaust system business, Mitch really went all out on the plumbing of the pickup. The beautiful headers curve back and run beside the body below the doors. At the end of each is a cap, bolted in position, and, when removed, rid the exhaust system of back pressure. For street driving, additional pipes have been welded to the headers and these curve under the body, run through two Mitchell mufflers, then re-appear once again just behind the body and run the length of the frame. The tailpipes are painted black so as to not detract from the lacquer job on the body and the pickup bed.

Carrying out the Oldsmobile theme, the steering wheel, mast jacket, Hydramatic selector and its indicator, turn signal indicator and gas and brake pedal are '50 Olds. Casual observers are quite startled, at first, when they glance into the car and see just the two pedals – the automatic transmission, naturally, needs no clutch pedal.

Installing the critical Hydramatic throttle linkage proved to be a real project as did the shift linkage – made double difficult with the dual Olds carburetors which, by the way, are set on an Edmunds manifold.

To compliment the engine the block is painted red while all of its accessories are chrome plated; the fan assembly, rocker covers, carburetors, generator, etc. Chroming has been carried through to the Hydramatic unit, too – both the lower and side cover pans have been plated as have the shift and throttle linkage.

The dash panel carries the usual array of Stewart Warner instruments; speedometer, ammeter, oil pressure gauge, water temperature gauge and gas gauge. They are mounted in a chrome panel that also houses the necessary electrical switches; headlight, ignition, dash lights and so forth.

The rear of the pickup bed provides a mounting place for the license plate, which is flanked by two accessory lights, and twin chromed motorcycle taillights. The gas tank, exposed below the rear of the bed, has been lacquered and provides a good place for a shop identification sign.

The red painted Ford front wheels mount 5.50x15 white sidewall tires while the rear Olds wheels are fitted with 7.60x15 whites. Motorcycle fenders cover the front wheels and are secured to the Ford brake backing plates. The rear fenders are, at the present time, in the making and, when completed, will be of the cycle type but will be secured to the frame directly below the lower edge of the pickup bed.

Since its completion, nearly three years ago, the little bomb has competed in a good many auto shows and has won for its proud owner a considerable number of trophys. It has also taken an active part in many reliability runs held throughout the Southern California area during the past few years.

The semi-modified engine, together with its automatically shifting transmission, gives the pert little pickup a surprising amount of punch and is one reason why it is referred to as Mitch's Bomb.

The interior of the car is as neat and clean as the exterior. Many people are startled by lack of clutch pedal. Steering wheel is Oldsmobile.

Photos by Poole

Horseless Carriage owners get together to commemorate the 40th anniversary of the running of the original . . .

CORONA ROAD RACE

ALONG ABOUT 1913 the annual Indianapolis race had grown to proportions greatly exceeding the hopes of the original promoters. Once a year cars sped around the famous track and their speeds increased with each successive race. It wasn't long until the entire country was looking forward to the yearly classic when one driver would become the top racing figure of that day. International competition began entering the race and it soon became one of the great recognized speed classics of the racing world. Being centrally located for the majority of the population of the United States, the crowds became larger and larger.

Even in those days automotive interest had its center in the Southern California area. As early as 1912 someone suggested that the West should have its own racing classic, so work was started at once to locate a suitable place at which to construct a high speed track.

A few possible locations were considered but the prohibitive cost of building the type of track wanted left the promoters slightly aghast. Eventually someone came up with the bright idea that possibly such a course, as the instigators had in mind, was already in existence and all that would be needed would be to build grandstands. This observation, of course, received nothing more than discourteous laughs from those concerned. "Where, indeed, would there be such a place?"

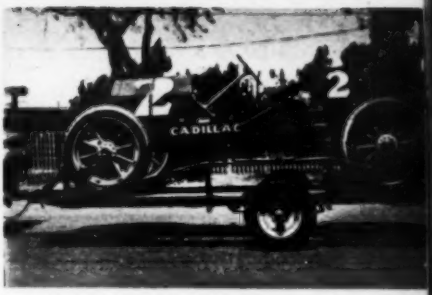
Actually, such a place really existed and, moreover, it lay less than 45 miles from the heart of Los Angeles. All that was needed was for someone to bring the place to mind, but before we go on let's go back a bit and see why and where the course was built.

The building and land boom that California experienced before the turn of the present century brought people to this far western state in droves. They came in such vast numbers, in fact, that the city could not grow quickly enough to take care of them all. Therefore, large tracts were developed and houses built in surrounding areas before the people were allowed to buy. One such town, actually laid out before any homes or stores were constructed, was called Corona. Its nickname was "The Circle City" because, for no particular reason, the developers had built a circular avenue and, within this street, the city was laid out. With an exact diameter of one mile, thus a circumference of 3.1416 miles, the circular street became appropriately known as Circle Blvd.

The year of this activity was 1886 – quite some time before the advent of the automobile as we know it today – and the town grew swiftly. After a good many years the original dirt streets were covered with a layer of asphalt – including Circle Blvd. The year of the paving was 1912 – a pure coincidence that it was the same year that the idea of the race was born.

It is not positively known, at this time, who originally thought of using Corona's Circle Blvd.– later changed to Grand Blvd.– as a race course but whoever it was should have his name recorded in racing history. This decision resulted in some famous races, even surpassing those at Indianapolis in popularity, as attendance records prove.

The course, over a half mile larger in circumference than the two and a half mile Indianapolis Speedway, promised to boast of speeds far in excess of the speeds of its Eastern counterpart. The promoters did a tremendous job of arousing more than local interest in the coming classic. A motor caravan even journeyed to far off San Francisco causing spectators to come from many hundreds of miles to witness the great event. When the day dawned bright and clear an official count showed more than 75,000 paying spectators in attendance.

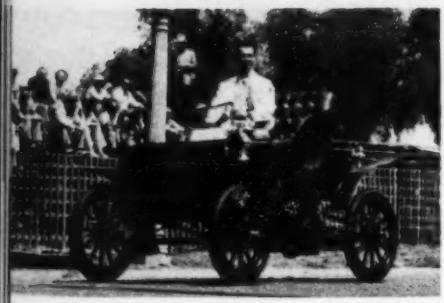


This 1912 Cadillac Santa Monica Speedster did not compete. It was deemed too fast for course. Car ran in the original Corona races and is now the property of HCC president Lindley Bothwell.

The course proved its capability on that Sept. 9th in 1913 to both the drivers and promoters. As soon as the checkered flag had been given the last car, plans were commenced for the second annual event. During the ensuing year drivers were contacted, publicity built up and, in many garages throughout the Southland, cars were tuned to perfection. Among the racing greats that participated in the annual races were Eddie Rickenbacker, the great Ralph DePalma, Barney Oldfield and many more.

Because the second race, at which an official count showed over 100,000 spectators,

Prior to the start of the races the veteran cars paraded around famous Grand Blvd., scene of the original races held 40 years ago in Corona.



Second car in the single cylinder race was this 1901 Pierce "Motorette". John Carra is driving.

saw many near accidents, it was decided to abandon the project because of the extreme danger to the crowds. The spectators and the press persisted, but the management won out and 1915 saw no race whatsoever.

A new, younger group came to the head of the crumbling organization and passed the word along that 1916 would see more racing; bigger, better and faster than ever before. Among the participants that filed for entry in the event was the former Speed King, Bob Burman.

On April 23, 1911, Burman, in a powerful "Blitzen" Benz, had set the racing world back on its heels when he succeeded in raising the world speed mark from 131.724 (set by Oldfield in 1910) to 141.732 at Daytona Beach, Florida.

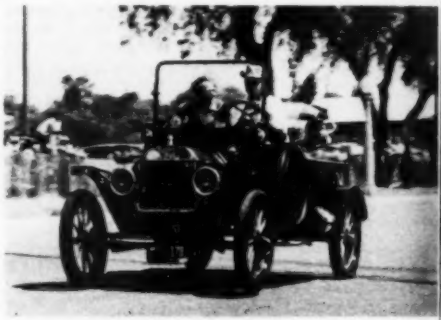
Ralph DePalma, during the 1915 Indianapolis "500" classic, had set a speed mark of 89.84 mph, consequently winning the race that year. However, at Corona, during the 1916 event, Eddie O'Donnell managed to average 97.4 for the 300 miles – eclipsing the Indianapolis race record by almost 8 mph!

The decision by the new committee to hold the race in 1916 was a bad one, though. Before the day of the classic, a heavy rain-

Huge, unrestored Rolls Royce Limousine lumbers toward the finish line, was last in its class.

storm succeeded in washing out all the roads into the town. Communication was disrupted and all but one of the rail lines were gone, too. This single rail line offered the only possible answer for the problem of getting people in to see the race. By chartering several flatcars, the race committee went to nearby San Bernardino where they loaded them with lumber. By working night and day they had succeeded in constructing bridges over the washouts just before the race. The unseasonal downpour, though, dropped the attendance figure to 25,000 – one-fourth of the total during the 1914 race. Nevertheless the race continued on schedule.

The high hopes of the newly organized committee were short-lived, though, when Burman's sleek car lost a wheel and went hurtling into the crowd, fatally injuring not only Burman, but his engineer and a spectator as well. This tragedy definitely ended the series of races for good – until this year, 1953 – 40 years from the date of the first



The winner of the Model T event was Alan Vivian in his fast 1913 roadster. Few breakdowns were experienced, a credit to the owners of the cars.

Corona Road Race event.

To celebrate the fortieth anniversary of the founding of the Corona Race this year, the Corona Chamber of Commerce invited members of the Horseless Carriage Club to participate in races over the same track on Memorial Day of this year. Thirty-two cars were brought by members, one of which was a 1912 Cadillac race car that actually participated in the original events. This memorable old speedster did not take part in the race but was on display throughout the day.

To further tie the past with the present, Mrs. Ralph DePalma, dressed in a duster and the other paraphernalia that goes with these old motoring costumes, acted as the Grand Marshall.

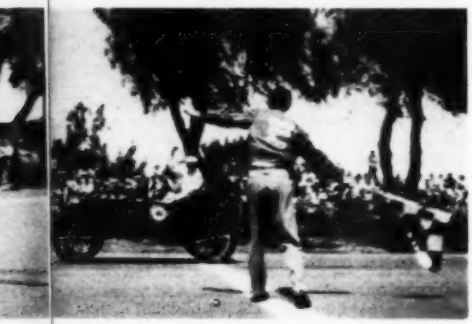
A parade of the veteran cars started the chain of events. The parade, as well as the following races, was photographed by news-

reel and television cameramen.

The first event was a race for one cylinder cars. Because it was doubted that these old-timers could complete the three mile circle they were started just a little over a mile from the finish line. The only two cars that could qualify for this race was a 1906 Cadillac and a 1901 Pierce "Motorette". Sputtering and backfiring, the cars took off in a cloud of exhaust and within a matter of a few blocks had reached their top speed — nearly 25 mph.

Walter Fife's Cadillac was the first car across the finish line and bringing up the rear was John Carra in his Pierce.

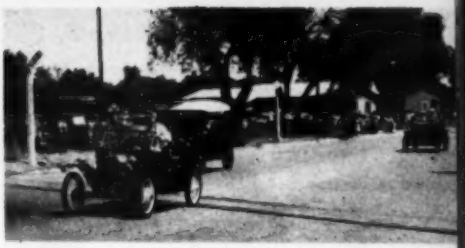
The second event was for Model T's only and this race found five cars entered. They were allowed to run for almost two miles. Spectators at the finish line were notified by loudspeaker when the race had started and everyone crowded against the protective fence trying to catch a glimpse of the winner. A police motorcycle, with siren screaming, came



Tom Wolfe, driving his beautifully restored 1910 Hupmobile finishes the race in a blaze of glory.

into view giving warning that the racing cars were not far behind. Within a short time the lead car came into view and seconds later crossed the finish line at a blistering 35 mph. As soon as Allan Vivian's 1913 roadster disappeared from view around the circle the crowd waited excitedly to see who would be second. There was a good one minute pause and everyone thought the rest of the cars had dropped by the wayside when, with a rattle and a bang, two more T's swung into sight with a third a bare 100 feet behind. The leading T's raced for the finish line practically neck and neck but with a final burst of speed, Virgil Charles' 1912 pickup beat out Wendell Freer's 1914 touring model.

The third race, one for 1910 and older cars, proved to be a crowd thriller from the instant it started. Once again loudspeakers called out the start of the race and everyone waited for the cars. With over two miles to go, the crowd didn't expect to see the first finisher for a number of minutes, but seconds after the loudspeakers had quieted down, the scream of a siren could be heard and soon the police motorcycle roared across the line at top speed. Barely a few feet behind him came Art Austria in his mighty Austria Special. Later, the scared motorcycle officer reported that the car had actually tried to *overtake* him while he was holding his cycle at its top speed around the curving road — 75 miles an hour.



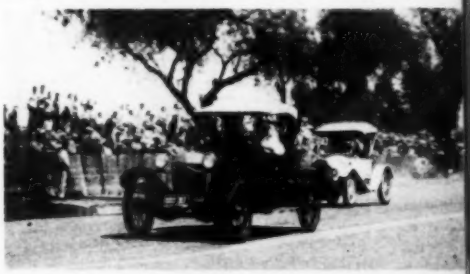
Runners-up in the Model T event. Leading in this photo is Virgil Charles in his '12 pickup. Third place went to Wendell Freer's 1914 touring car.

The Austria Special is a car that has only recently been constructed, but it is composed of parts from other old cars that were popular in the days of the original Corona races — thus making it qualify for this event. The frame of the behemoth is from an ancient Simplex and it is powered by an old Hall Scott aircraft engine.

The final event was open to any car built in 1915 or earlier but it was won by a 1917 Scripps Booth that somehow got into the fray.

There were tears in the eyes of some of the old-timers that hadn't seen cars racing on Circle Blvd. since 1916. The whole event was so successful that another just like it will be held on Memorial Day of next year — and we'll certainly be looking forward to it.

Mistakenly entered in the race for cars of 1915 or older vintage, this 1917 Scripps Booth outdistanced other competitors. Car was originally restored by R & C Editor, flagman for the races.



This is the Third of the . . .

10 STEPS to Customizing

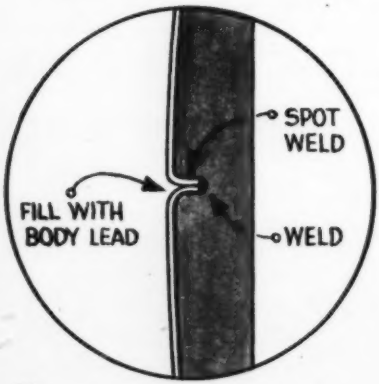
by Orin Tramz

IN OUR last article, we discussed the various ways and means of setting up a shop properly before beginning any rework on a car. The different points of discussion may seem irrelevant and immaterial at this time but they are doubly important since we are assuming a lack of experience, in this endeavor, would cause the reader no end of trouble and difficulty.

Now that you have acquired your equipment and are reasonably sure that you know what you have decided to do, let's proceed. Mark any proposed cuts you intend to make on the car body with a chalk or with a chalked snap line. Mark your job thoroughly and make no actual cuts until you are sure that you're sure. For initial cuts, after the chalk line is established, templates should be made from stiff cardboard to transfer one door or quarter panel pattern from the right side to the left, or visa versa. Use templates, again, to check the door and quarter panel contours, windshield and back glass openings, grille openings, etc. It only takes a short time to make a template in relation to the time it would take to rework a lopsided jalopy.

Remove as much of the dum-dum and insulating, tar-like, paper as you can before attempting any cutting. This will make the rejoining process less messy and the fire hazard negligible. Again, before doing any cutting or welding on a major job, be sure to take out the gas tank and remove the battery. In actually cutting a door post, use a hack saw; on a panel, use a panel cutter; and so on throughout the entire car. Panel cutters are built to cut sheet stock and will break, or become dull, on heavier gauge stocks. When cutting an outer door or quarter panel, make allowance for approximately 5/16" of metal overlap on both the upper and lower sections. The purpose of this is to facilitate rejoining by a butt weld. The 5/16" excess can be bent by hand to 90 degrees and the two edges butted for rejoining. This will make both a strong joint and a smooth job.

When sectioning a door or quarter panel, allowance should be made for an excess of metal. With the excess turned in to form a lip, provision is automatically made for spot, or tack, welding and with a minimum of panel distortion.



This method results in the use of much less body lead and is a faster method of joining than a plain lap, or butt, joint would be. A weld of any great length on sheet metal panels will cause a pull of tremendous tension when the area is allowed to cool. This will cause undue stress on large, flat or curved surfaces.

Check your skill with the panel cutter on an old door or fender before actually chopping into your car. You should also check your dexterity with the body grinder before blasting away. See that you don't have on any inflammable clothing such as a flannel

shirt. I know, one caught fire, once, while I was wearing it.

Back to cutting again. In the case of most modern hard top model cars, the wiring for the roof and tail lamps run through either the left or right windshield post. Check the coding on the wires, since they are all marked, for future reference. If your reworking calls for elimination of these parts, or if the opening in the reworked posts is too small, run the wiring along the frame rail or along the door plate sill through the body of the car. These wiring looms should be wrapped with Koroseal tape to protect them from the elements. Use the same gauge wire, when replacing any cut sections, that the manufacturer specified.

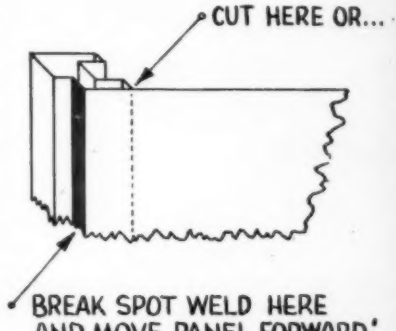
To successfully break spot welds, drill out the actual spot through one thickness of the adjoining panels. Use a dull, thin spoon inserted between the layers of metal and follow the drilled out holes to the end of the row.

When cutting floors for channeling, remove all the caulking compound from the seams. Clean the floor of all dirt so you can clearly see what you are doing, then proceed. Determine the amount you are going to drop the body over the frame by checking your leg clearance, head room, spring clearances and the location of the hangers for mounting using the original mount holes. Make your cuts in straight lines for every reweld where there is a stiffening rib. If you do your cutting with a torch, be sure to use a metal cutting guide so the cuts will be even and uniform. These few precautions will all save you a lot of time when it comes to finishing up the job.

Eliminate as much excessive and unnecessary weight as possible during the cutting operations. There exists nearly 200 pounds of useless gussets, braces, trim bows, rubber, inner panels and what-not in the average, modern car. Throw this junk away as you proceed and replace it with simpler innovations of your own. Use discretion, though, many braces and strengthening members are tremendously important. What we had in mind, mainly, were stiffeners that would be useless after a cutting procedure. If you want to clean up the exterior of your car, remove all the useless outside trim as you go.

Here is another tip that may come in handy. If you are cutting a panel or door to shorten it – sectioning vertically, you might say – make the cuts at a door post or other vertical support so that when the project is reassembled the outer skin can be joined directly to the support without causing any unnecessary welding where the panel is not strengthened internally. The recess caused by welding or brazing can be filled by using a minimum amount of lead.

In case it is found necessary to shorten, say, a deck lid, it is much easier to trim the excess from the bottom of the lid than to cut it through the middle. Unwrap the outer skin from its inner structure by breaking the spotwelds as explained earlier in the article. Cut the amount to be removed from the lid from the center of the inner bracing structure. Move the lower portion up to meet the upper part of the structure and tack weld the two together. Pull the outer skin out of the way being careful not to kink or crease it, and close the lid to check its fit. If alignment is good, go ahead and finish welding the severed joint. The outer skin can now be brought down to its proper position. The desired amount may be cut from the lower edge of the skin allowing an additional ½" for overlap. Then, with a hammer and a dolly, fold the edge of the outer skin around



In shortening a quarter panel, vertical cuts should be made near a post or stiffening rib. Drawing shows how panel can be moved ahead, then replaced over the post as it was formerly.

the lip on the inner structure and tack weld the sections together.

Let's hope that you have followed the instructions in the last installment and stacked your interior trim and upholstery well out of the way. Make sure that you have sheets of cardboard between the seats so that a projecting nail or piece of wire isn't gouging a hole in the piece of material directly below it. Remember that the inner upholstered panels and the seats may have to be altered so they can be repositioned back inside the body. The same amount of material will have to be removed from the inner cardboard panels as from the outer metal panels. This is easiest done by removing the upholstery from the cardboard backing, then cutting the desired amount from the bottom of the cardboard. This will result in proper alignment of the window handle holes, door handle openings, etc. The trim can now be re-cemented to the fiber panels using a good grade of trim cement. Excess material should be care-

fully removed with a pair of sharp shears.

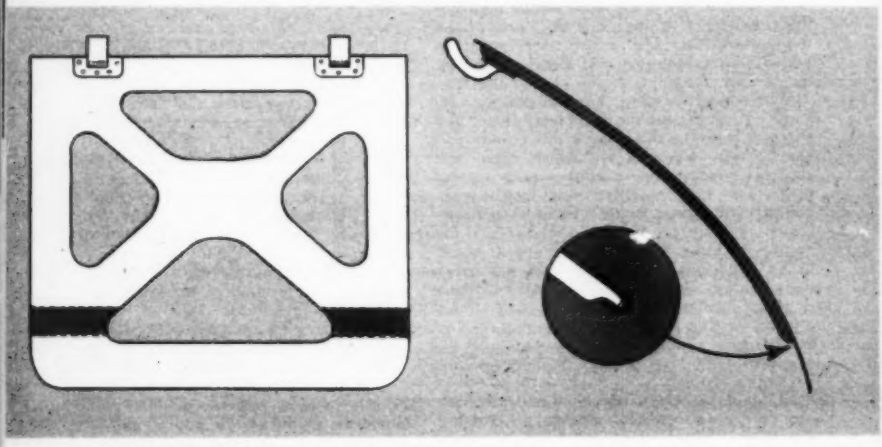
Seat backs can be quite easily cut down with little trouble providing you know how to go about it. Remove the upholstery from the seat frames by taking off the retaining hog rings. Store the seat material and the padding away from sparks or any sharp pieces of metal. One section of coil springs can be cut from the seat and the seat sections re-joined by welding. Be sure that all the spring retaining bars are repositioned correctly. The upholstery can now be replaced using hog rings which can be obtained from any upholstery shop.

Front seats can be lowered by cutting approximately 2½" from the pedestal that holds the seat up from the floor. Reweld the supports and bolt them into position after making sure that the height of the seat is where you want it.

When dropping a car's silhouette by sectioning the body, retain the hood hinges on the cowl. Relocation of any assemblys of this nature will result in a lot of trouble when it comes time to realign them. In late model cars, the lower front fender skirts will drop below the rocker panel section. Cut off the excess leaving enough material to allow for a stiffening flange. The wheel cut-outs should be treated accordingly to facilitate wheel turning and to balance the design. Allow at least ¾" excess metal from the true edge with which to form a fender bead — necessary for strength. On older model cars with a high hood, the top plane may be left intact while the bottom edge can be cut and re-rolled for reinforcement. When cutting *any* exposed edges, allow an excess of metal which can be rolled under for reinforcing.

When cutting down a radiator to match the new, lower silhouette of a radically altered car, a wider core should be considered to take care of the loss of cooling area. Consult your local neighborhood radiator shop for the whys and wherefores of this operation. The usual procedure, if you want to tackle it yourself, is to remove the top radiator tank by melting the solder. The desired amount can then be cut from the core itself and the top water tank replaced. This is an easier project on the rod type radiator than on the honeycomb type, though.

When cutting front, inner fender skirts or baffles, cut the amount from the bottom edge then recut the clearance holes for the shocks, A-arms, frame rails, etc., but allow at least ¼" excess of metal from which to fold a stiffening edge. Cut the radiator support from the top down then relocate the mounting holes, if necessary, and weld nuts on the back side of the holes. This will save a lot of trouble when it comes time to reassemble your panels.



If your alterations call for a section to be taken out of the deck lid, the inner structure should be cut at the most convenient place, left, and the outer skin trimmed off the bottom, right.

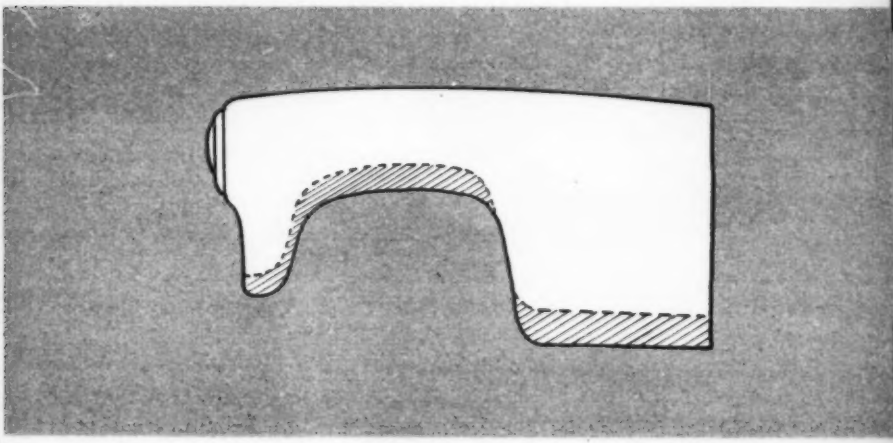
Here's a bit of information on frenching headlights. Don't let this operation scare you one bit. It is one of the simplest and dressiest operations that you can do to a custom job for the expense involved. I don't know where the French get a particular corner on this operation, since I had a snazzy set of bull's-eye peepers on a '31, blocked down, six barrel Chevy roadster some years back that caused a few heads to turn in wonderment. Anyway, remove the entire headlight assembly from the car and trim off the ⅛" rim from the headlight bucket. Reverse the speed clips on

the fender and remount the unit from inside. Cut slots in the back of the adjusting screws so they can be adjusted from the rear. To reach them, it will be necessary to drill holes directly behind them in the headlight unit so they may be reached with a screw driver. De-chrome the headlight rim by sanding it down to bare metal — or have the chromer de-plate it electrically — then tack weld it in place on the fender. Check its contour with that of the fender then go ahead and weld and lead it into place. Simple, isn't it?

Some of the older model cars can be reworked into beautiful sports jobs and still be really different. The initial cost would be small and the results beautiful. Take, for instance, a '36 Ford coupe. Remove the top completely and shorten the frame and rear quarter panels about 10 or 12 inches. Drop the deck lid and rear of the body down to about fender height. Section the doors and cowl about 6 inches and drop the hood to within 3 inches of the front fender height. Reposition the headlights and fill in the horn ducts. With the addition of plain bumper bars, a lowering job, a good set of shocks and hydraulic brakes you would have an American type Jaguar for a quarter of the cost of the European car.

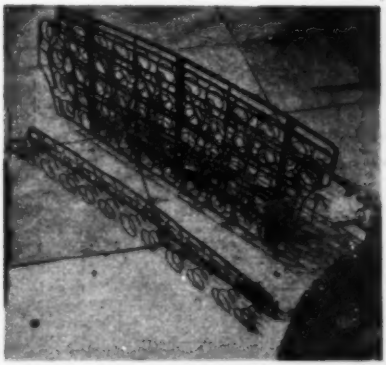
The '40 or '41 Ford coupe could be also

(Continued on page 58)



Instead of cutting through the middle of a front fender when it comes to sectioning, the excess metal can be trimmed off of the bottom of the front and rear lower edges and the wheel opening raised a similar amount to facilitate the steering of the front wheels.

The accompanying photograph shows a rear seat back rest that has been reduced in height in conjunction with the sectioned Chevrolet that it has been taken from. The hands in the photo indicate the location of the removal of a single row of coil springs (foreground). This was done by cutting the seat frame in two places (four inches apart) then rewelding the frame together after the coil spring row was unclipped. Note that the section was removed above the wheel well cutouts of the seat frame. This eliminated the necessity of reshaping the seat frame to fit the contours. Upholstery can now be replaced on the seat. This method can be used whether or not the seat cushion was lowered. If you plan on a similar operation to your car, take care that, when rewelding the seat frame, the heat from the torch doesn't weaken the coil springs or collapse them altogether.



Pretty Miss Ivana Patton, who also graced our cover this month, provides a pleasing foreground for our Chevrolet custom coupe. The '53 Chevy was restyled by Glen's Paint & Body Shop up in Monrovia, Calif., for owner Robert [illegible]

OUR CHEVY OF THE MONTH

is this clean little '49 coupe

Photos by Poole

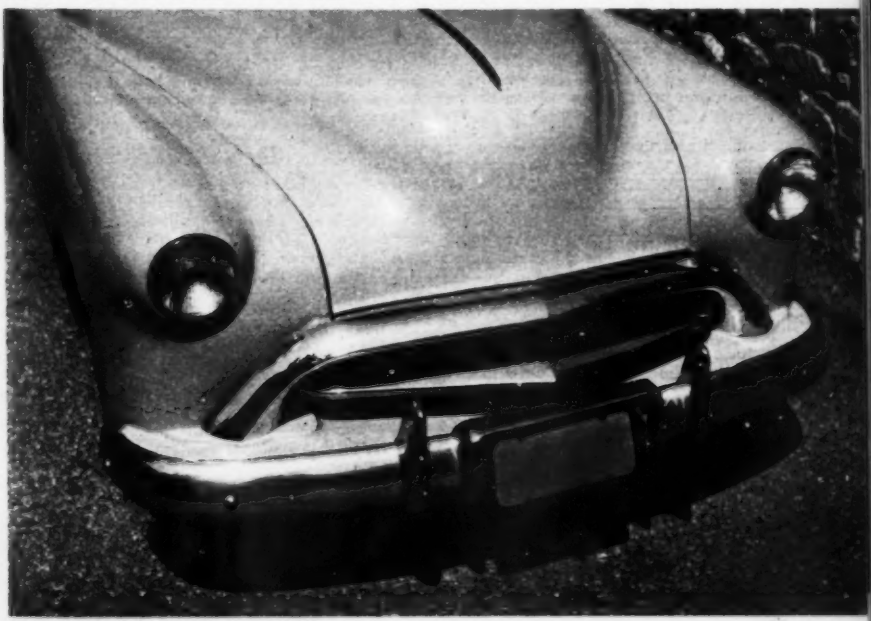
BOB BORST, like countless other auto enthusiasts, has run the gamut of cars from Rods to Customs with even a motorcycle and a boat or two thrown in for good measure. When he sold his last Rod, though, he told himself that it would be the last altered car for him. He felt that he had outgrown what he referred to as "kid stuff" so he bought a stock, everyday, '49 Chevy Standard coupe.

By the time he had driven it to and from work for a few months, Bob discovered that the bug had, indeed, bitten him again so a visit to Stan's Paint and Body Shop, in Montrose, Calif., was in order.

Because the car was a standard model there was little chrome on the car to be removed, so it was decided to only conservatively customize the car and retain as much of the original trim as possible. (Incidentally, a lot of customizers use these chromeless standard models for rework and, when they're done, point with pride to the flawless metal work where there supposedly was a chrome strip but where, actually, one never existed at all.)

The first item to receive consideration, as is usually the case, was the front end. The stock Chevy grille was completely removed.

The center grille bar was custom made but intended originally for a Mercury. Headlights are frenched and holes in front of hood filled in. Gravel deflector has been molded to the fenders.



what is channeling?

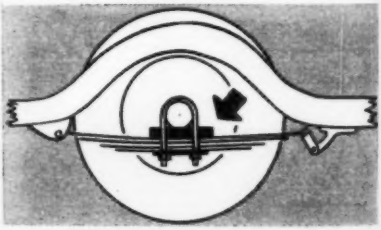
Not sure? . . . then read this!

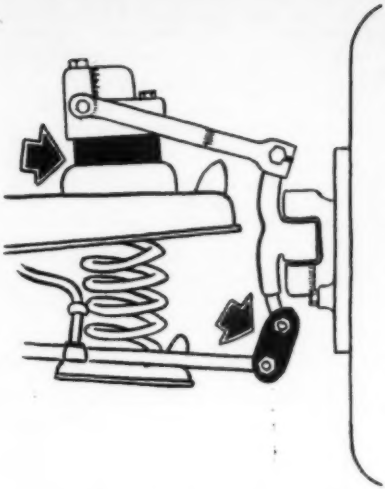
DURING THE COURSE of rummaging through our ever-increasing stacks of incoming mail we occasionally run across a letter in which the writer goes to great lengths in describing his car. Some of these letters give a list of modifications to the car with a full description involved in the operation opposite each heading. Glancing through the modifications given in one letter we ran across the following: "Channeled – by heating the front coil springs and by installing lowering blocks in the rear." Now then, this is no more channeling than is, say, filling a hood. Apparently the writer didn't intend to give us the run-around, he just seems to have been misinformed. Just to set things straight, let's run through some of the terms generally applied to lowering cars and briefly talk about the operations involved.

Lowering in general. There are a variety of ways to reduce the distance between a chassis and the ground. The easiest method is to alter the suspension by one of several methods depending, of course, upon the make and model of the car. Pre-1949 Fords and Mercurys can be dropped (front or rear) by the installation of longer spring shackles. This method is not too highly recommended unless the car is equipped with an anti-sway bar as the body will have a tendency to sway in relation to the wheels. An alternate method for the same cars is to re-roll the spring eyes or to de-arch the springs. The front of these same cars can also be lowered by the installation of a dropped axle.

Fords and Mercurys from 1949 and on (as well as Chevys and many newer cars) have parallel leaf springs in the rear and coil spring suspension in the front. The use of lowering blocks in the rear has become practically universal but, speaking of universals, the use of blocks giving a drop of more than two inches will cause the universal joint to run at an extreme angle which could cause damage to it. Front coil spring suspensions can be altered by removing the coil spring from its sockets and cutting off a coil or two with a torch. The springs can also be heated until they collapse but this method is *not* recommended and is listed for descriptive purposes only. A new method of drop-

Lowering blocks, used on cars with parallel leaf springs, has become universally popular. The block is positioned between the axle and spring and lowers car thickness of the block.



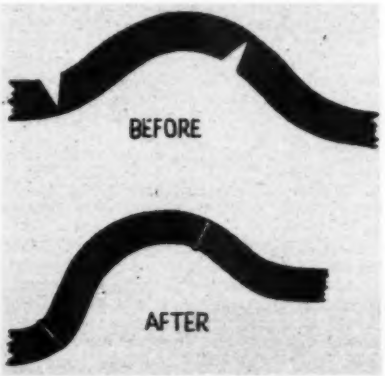


Extending the spindle arm is a recently popular innovation (see Accessory Installation) and lowers the front of coil sprung cars without any alterations at all to the spring itself.

ping the front of coil sprung cars is by extending the lower part of the spindle arms and raising the upper A frames where they pivot on the chassis.

To summarize this brief discussion, the term "lowering" is applied to mean the reduction of ground clearance and is attained by altering either the springs themselves or

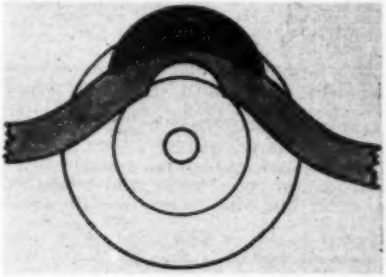
A frame can be kicked up in the rear by making two V shaped cuts in each frame rail. With the V's closed and joints welded, car is lowered. Since frame becomes shorter in overall length, it is necessary to move rear crossmember back.



their upper or lower mountings. Of course, other modifications may be necessary to allow proper clearance (particularly in the rear). Such alterations may include notching the frame over the axle or raising the driveshaft tunnel. These things go hand in hand with lowering and are *not* an indication of a channel job!

Chopping. This term has come to mean the cutting down of either a steel or convertible top. On coupes or sedans, this means removing a certain amount from the windshield posts, the door posts, from the top itself between the backlight and the quarter glasses and by stretching or reshaping the turret top. A car that has been lowered or dechromed but with a stock height top is *not* considered as having been either chopped *or* channeled.

Sectioning. This describes the operations involved in removing a section of metal from the waist of a car, all the way around. It is similar to chopping except it is the height

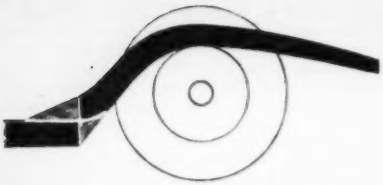


C-ing may be necessary on a severely lowered car so that axle and frame will not "bottom". An addition is built onto frame so that rails may be notched out without cut weakening them.

of the lower part of the body that is being reduced, not the top. Again, sectioning is *not* channeling.

Z-ing. One way to reduce the height of a car from the ground without altering the springs is by raising the frame side members and the connecting cross members. This, in turn, causes the spring mounts to be raised, hence the reduction of ground clearance. This is accomplished by cutting the frame rails in half where they begin to slant upward for axle clearance. The lower portion of the frame rail to be raised is brought up even with the upper part of the original-level portion of the rail and the two are then butt welded together. The joint is then reinforced by adding triangular shaped gussets.

Kicking-up. This is somewhat similar to Z-ing inasmuch as the end portion of the frame is raised in relation to its original location. This operation does not involve severing the frame completely. At a point near

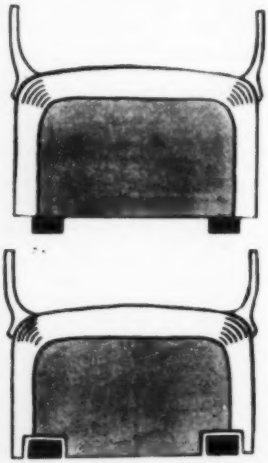


Z-ing can be accomplished by separating frame rails, raising rear of frame the amount of its thickness, then butt welding flanges. Gussets must be added to reinforce cut. Drawing shows Z-ing as it would be done on late model frame.

the upward slant of the frame, a V shaped notch must be cut from each side rail with its apex toward the bottom edge. The ends of the frame are next raised so that the V is closed and the joint is welded. If the project involves, say, a six inch kick-up, another V must be cut from each side rail six inches higher than the first notch. This V has its apex near the top of the side rails so that when the gap is closed the extreme tips of the rails are parallel to, but six inches higher than, the original location. Naturally, this serves to shorten the frame, a certain amount so the rear crossmember and/or the spring mounts must be moved rearward a certain amount.

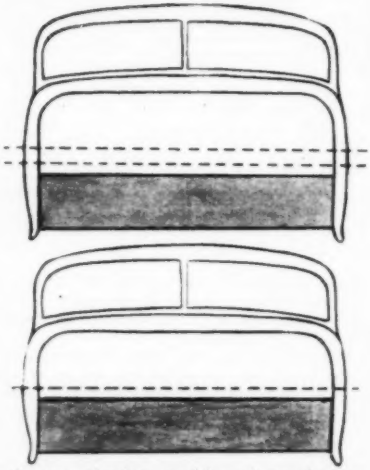
With either of the last two described methods, the rear body flooring must be altered to fit the new design. The driveshaft tunnel

Channeling, with an older model car of fairly simple construction, is done by slotting firewall and dropping it around the frame rails. Floor section must be raised inside the body.



in the body floor may have to be raised to allow clearance. The differential clearance well in the floor of the trunk compartment must also be raised if there is danger of it coming in contact with the rear end.

Channeling. It is not within the scope of this article to cover every conceivable way to reduce the height of every make and model of car, rather we are attempting to give our readers a little assistance in determining just what has, and what has not, been done to a particular car. Channeling, then, is the method used to reduce the height of a car *without* lowering the chassis. The *only* cars that have been channeled are those that have had the *entire floor section* removed



In the case of a later model car it may become necessary to *section* cowl due to construction. Channeling may require raising the fenders in relation to the body so that wheels will steer.

from the body; the body dropped down around the frame; the floor section rewelded in the body in a higher position and, possibly, the fenders raised to allow proper turning of the wheels. It is usually necessary to weld new supporting brackets to the frame to properly secure the body. On older cars the firewall has to be slotted so that it may drop over the frame while on later model cars it is necessary to *section* the firewall at a point where it is as close to being vertical as is possible.

So, the next time someone tells you that his car is channeled, take a look underneath or open the hood and look at the firewall. *If* the car is channeled, it will show. There should be newly welded seams, added supporting brackets and cramped leg room inside. *Don't be fooled or misled.*

Kansas City ROCKET

Photos and text by Grier Lowry

CUSTOM BUILDING, in Kansas City, Missouri, is in the throes of a "growing pains" cycle. More and better cars, however, are beginning to emerge from this, the farm belt of the U. S. One of the better cars from this area is this 1950 Olds 88 owned by Toby Tobiason.

After laying out $1,450 for the car, the owner put an additional $650 in the engine and $150 in exterior custom work and upholstery. The result is a fine running, easy handling car that puts out 180 road horsepower using ordinary pump gas.

The modified Olds engine has been bored .060" over stock and uses oversize stock pistons with Perfect Circle chrome rings. The heads have been polished, ported out and milled .100" boosting compression to a ratio of 9½ to 1. A little detonation is experienced but only when the engine is under full throttle. The connecting rods have been drilled to provide a full pressure oiling system. Total displacement of the engine is 314 cubic inches.

The carburetion department features two Cadillac Strombergs on an Edmunds manifold. A Herbert 270 full race cam and a Mallory distributor help the cause a considerable amount.

The exhaust system is comprised of Belond headers and twin stock Olds mufflers. The car does not have a fan but it heats up only when caught in very heavy traffic.

One of the big reasons that the car has more acceleration over other cars is due to the modified Cadillac clutch together with an Olds conventional shift transmission. The clutch uses an eleven inch disc with a 1,845 pound pressure plate. This amazing pressure was reached by using 205 pound pressure plate springs. The rear end ratio is 3:64 to 1.

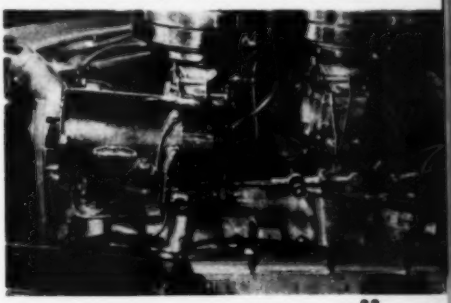
To help the car's handling qualities and to stabilize it on turns, the owner has inserted Airlifts in the rear coil springs.

Dechroming the hood and the deck lid were special exterior touches designed to give the car that much desired custom look. The interior of the car is finished off in a deep blue. The window garnish moldings, ash trays and radio and clock heads have been chrome plated.

The big car is always a top contender at the drag meets held near the city and the owner is the vice president of the newly formed Kansas City "Dragsters".

The mild dechroming job includes the removal of hood and trunk lid ornaments and medallions.

Left side view of engine shows dual carburetors & Edmunds manifold. Throttle linkage was made of aircraft parts. Engine puts out 180 hp on gas.



Close attention to small details is just as much, if not more, important on a Rod than it is on a Custom. Switching over from one to the other this month we find that there are countless little items that could use a fresh approach thus making the roadster, coupe or pickup stand ahead of its otherwise identical companions. An ordinary channeled roadster is not so near outstanding as one that is not necessarily channeled but has, say, a new approach to the headlight problem or a really unusual paint job. After all, the majority of rod builders construct their cars with the idea in mind to have something a little different. Put on your thinking caps and get out the sketch pads then start dreaming on paper like these rod owners have. See if you can't come up with an unusual idea and, if not, use some of the suggestions shown here. The little trouble and the slight expense will be well worth it in the end.

Those Little Things THAT ADD SO MUCH

Bumpers are another thing that will greatly distract from the overall appearance of a rod unless discretion is used when deciding upon the type and shape. In most cases, the original bumpers that came on the cars most popularly used for rods either do not provide adequate protection or else do not look quite right. Therefore, bumpers must be borrowed from another car or built from heavy metal stock. Bumpers, or nerfing bars, can be built from heavy steel tubing and chromed to make them a point of interest. Because tubing is easily bent to practically any shape, original designs can be carried out with little trouble. The owner of this '32 roadster wanted his rear bumper to be simple in appearance but sturdy enough to withstand whatever bumps it might get from a carelessly parking motorist so he decided on the pleasing design shown in the photo.

Taillights have always been a most perplexing problem on a roadster. The question of whether to use round, square or oval lenses has plagued many an enthusiast and resulted in an indecision on the part of many builders as to what is right and what isn't. When it comes to looks, taillights are a necessary evil. With a little consideration, though, and a minimum of work various types lenses can be satisfactorily worked into good looking installations. In this instance, 1950 Ford taillight lenses were used and set into housings that were, in turn, flaired into the body just below the lower corners of the deck lid. They not only enhance the rear of the '32 but provide more than enough warning to following motorists. Incidentally, this idea comes to us from far across the Pacific Ocean – the car was built by Bob Longie in Hawaii.

Ever since the advent of the Model A Ford the old T's have been a favorite for rod builders. Whether it's a T coupe, sedan, tub, pickup or roadster nearly every enthusiast has seen, or wanted, one – preferably with a good big mill in the tight little engine compartment. The most popularly used model is the '27 roadster but let's take a peek at a '25. These snug little bodies provide a fine covering for a chassis and the low, narrow tail section causes them to look very pert. The trouble, though, is that the little tail section does not adequately cover a late Ford rear end assembly. The owner of this car has gotten around this drawback by constructing a fine tail pan. Not only does it hide the undercarriage but it provides a place to mount the taillights and the license plate as well.

Some people actually get to the point where there is little or nothing left to do to their cars. This is a much envied position to be in, especially to someone who is just beginning to construct the car of their dreams. However, this point of actual completion is one that can be hotly debated for there is no theoretical limit to the ends to which one can go – if he wants to. Take, for instance, the door hinges on your rod. Do they stick out like a sore thumb and get in the way or have you replaced them with hidden-type hinges? Or have you made them even more outstanding by having them chrome plated? Here is a switch if you do not know what to do with them. "Frenching" has long been a much used term in the automotive restyling field to describe the operation involved in filling in a seam with lead or other metal. Here, then, are hinges that have been frenched. While it probably isn't readily apparent to the casual observer, it's just another of "Those little things that add so much."

Photos by Poole

The POLYNESIAN

Have you ever considered asking someone to cut your car completely in half? Moreover, would you actually *pay* for having it done? Well, that is what Jack Stewart did when he took his '50 Olds 88 Holiday coupe to the Valley Custom Shop in Burbank. In fact, he brought it to *California* all the way from *Ohio* to have the operation performed.

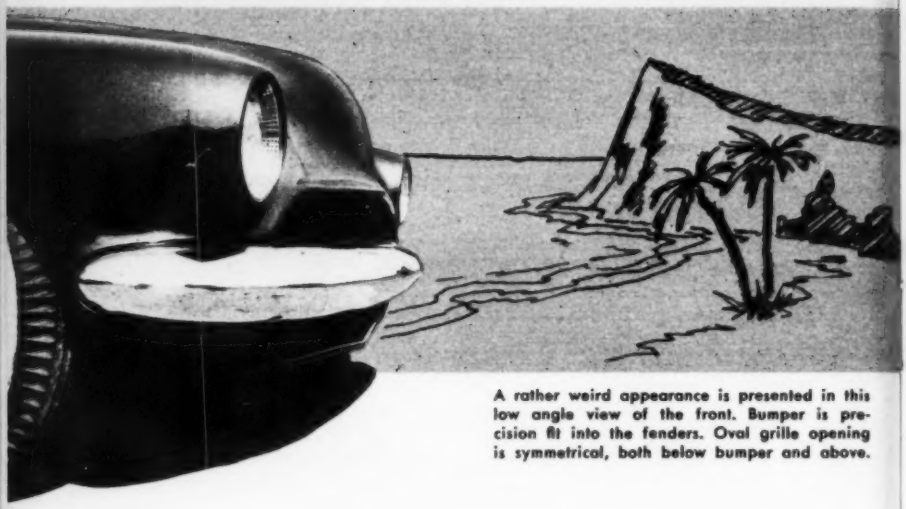
He realized that the type of job he wanted done to his car would be best done by Neil Emory and Clayton Jensen, co-owners of the shop, since they are the outstanding builders of sectioned cars, probably, in the country.

Words alone cannot graphically portray the beautiful workmanship on the car so we'll let the photographs speak for themselves.

The overall height of the car may be noted in this graphic view of the Polynesian. The wheel cutouts have been raised to allow for steering. Note protruding lip on body surrounding bumper.

Detail photo of taillight. Upper lens is for taillamp, center lens for backup light, lower lens for stoplamp. Trunk lid has not been altered other than removal of hardware. Because taillight does not protrude from fender, small warning lights are set into side of bumper tip.

During construction, it is shown that rounded contour of light opening was made of bar stock.



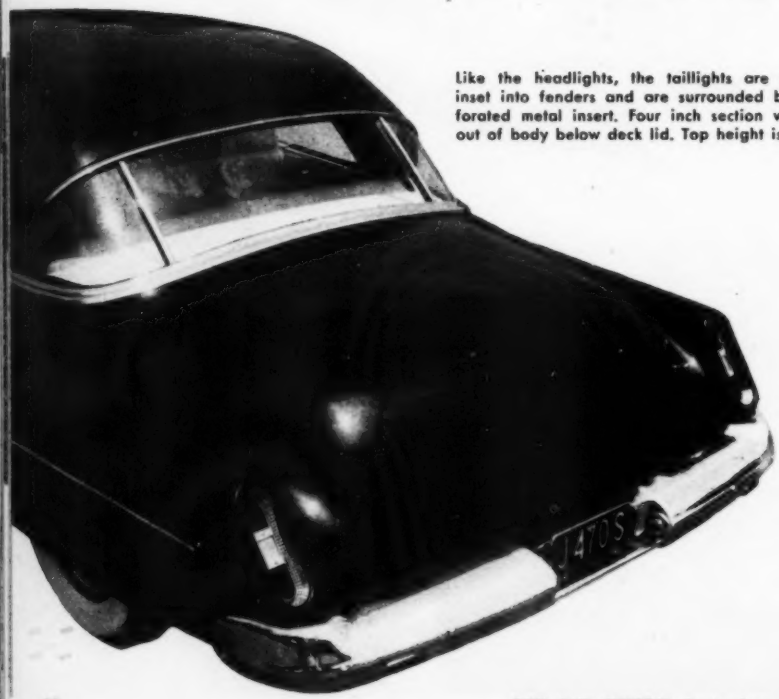
A rather weird appearance is presented in this low angle view of the front. Bumper is precision fit into the fenders. Oval grille opening is symmetrical, both below bumper and above.

Bug-eyed appearance is due to large opening surrounding headlight. New duct around back of unit transmits air to interior of the car.

One of the best looking cars we have ever seen, the Polynesian's emphasis is on uncluttered and functional lines. Grille opening is surrounded by protruding lip and protected by wrap-around bumper. Headlights are deeply inset and surrounded by a perforated insert that provides the ventilator holes for the interior air ducts.

After top part of body was dropped, edges were welded together then forged smooth. Polynesian contains only the barest minimum of lead work.

Alterations to the side include new rear fender skirts and chrome strips. Ground clearance is just under stock, proving that lowering doesn't make a car look any better. Tailpipes protrude through the rear bumper by way of special tips.



Like the headlights, the taillights are deeply inset into fenders and are surrounded by perforated metal insert. Four inch section was cut out of body below deck lid. Top height is stock.

Perforated motif is carried through to the air scoops on each rear fender. Note that the new skirts overlap fender instead of fitting flush as on stock model. Fine metal work is obvious.

Rear bumper has even been restyled! License is set into bumper and is illuminated by parking lamps set into each side. Bar below plate both strengthens the bumper and protects the license.

"Custom look" is not evident on first glance. Many people have mistaken it for an advance released model of a Detroit Dream Car or one of the better European designs. The lacquer job, purple in appearance, is "Orchid Flame".

The heat range system of . . .

YOUR SPARK PLUGS

By Barney Navarro

SPARK PLUGS are usually taken for granted by most motorists. As long as they are a favorite brand, are clean and properly gapped, very little thought is directed toward them. Such an attitude will seldom get a car owner into trouble if he owns a standard Detroit creation and operates it under average conditions. The proper plugs for his engine have been selected by the manufacturer so Mr. Motorist has no problem other than replacement when they have worn out.

The engineers that originally made the plug selections had much more to think of than a brand name or the advertising slogan of a given manufacturer. Though a very simple appearing gadget, a spark plug must conform to many exacting demands. The most expensive plug obtainable will not perform properly if its specifications are wrong for a particular engine.

The foremost problem and most important specification when selecting a correct spark plug for an engine is the heat range. When we speak of heat range, we mean the plug and not the engine. Quite often the expressions "hot" and "cold" plug are used without knowing the exact meaning. It is thought by some to express the heat of the spark, its length or some other characteristic. Such a conclusion can be considered quite natural due to the many slang usages of the word "hot". If one wishes to be critical of the present labeling it is obvious that something more thoroughly descriptive could be used to express heat range.

The heat range of a spark plug actually deals with its COOLING ABILITY. Yes, the cooling ability of its insulator. Of course the feeble heat generated by its spark has nothing to do with the problem. Instead, it's the heat generated by fuel combustion. Considering that combustion temperatures reach as high as 4500 degrees fahrenheit, the necessity for plug cooling is quite evident. Actually, the problem goes much farther than cooling alone, but it nevertheless hinges on that factor. Basically, the cold plug has a greater cooling ability than the hot one.

As previously stated, cooling ability of the spark plug insulator determines the heat range. This may lead one to reason that all the manufacturer has to do is design a plug that has a fast enough rate of heat conductivity to stay cool. If it was that easy, every engine would be fitted with the same spark plugs and the present catalogs, listing dozens of plugs, could be thrown away.

What is more important than cooling alone is the maintenance of correct insulator temperature. Of course in some cases this has been and will remain an impossibility but nevertheless we can still hope for the ideal.

If a spark plug insulator is kept too cold a very undesirable soot or carbon accumulation will form. Due to the fact that carbon is an electrical conductor, the insulator's value is reduced. If the condition gets bad enough the electrical current will flow through the carbon formation to the base of the plug instead of jumping the point gap. When this happens a misfire will naturally occur. To avoid such an occurence the insulator must be kept within a definite temperature range to prevent the undesirable formation of soot.

If heat will remove the soot from the insulator you may feel that all we must do is keep the plug hot enough and our problems are automatically solved. No, it's not that easy. Just as there are extremes in keeping a plug cold there are also extremes of heat. Of the two, heat is much more detrimental because it can be very destructive. Two bad conditions can be produced if a plug is allowed to get too hot. The first and the worst is pre-ignition which means that the fuel charge is ignited before a spark discharge takes place across the spark plug electrodes. It may actually take place when

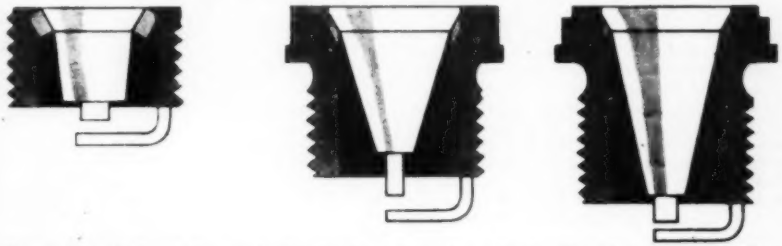
the piston is half way up on the compression stroke which will cause a great power loss and possible damage to pistons, rods, bearings and crankshaft. Sometimes, pre-ignition will produce a deep, knocking noise that sounds like a loose main bearing and at other times no noise at all will be apparent. When it is noiseless it can often be mistaken for a miss that was really produced by glowing spark plug insulators. When we say glowing, we mean just that for they actually get red hot. Insulators are not the only plug parts that have this tendency, electrodes are often guilty of the very same thing — but more about that later.

Now that the basic insulator heat problem has been explained we can delve more deeply into the practical side. From the foregoing it is obvious that an insulator can neither operate at too high or too low a temperature or difficulties will ensue. This fact causes more difficulty with high efficiency engines than any other because their plugs must have a wide heat range. In other words, they must be able to avoid soot formation and insulator overheating over a much wider range of combustion temperatures. They must be capable of staying clean with the low temperatures that are generated while the engine idles or cruises in traffic at 20 miles per hour and they must not glow with wide open throttle.

Some hopped up engines require a plug with such a wide heat range that it is impossible to find a standard American-made plug with the proper specifications. These engines require such cold plugs for wide open throttle operation that they have a tendency to foul at low speeds. The famous Novi racing engines experience this difficulty to a greater degree than any other engines in this country. If forced to operate under the yellow flag for a few laps, a plug change is almost certain to be necessary. With these engines, fouled plugs can even result from too slow a pace lap at the start of the race.

A common misconception exists regarding compression ratio and spark plug heat range. It seems to be generally believed that high compression is the only factor that makes it necessary to use a colder plug in a gasoline burning engine. In discussions relative to the use of colder plugs, compression ratio seems to be the only subject touched upon even though more efficient breathing at high RPM may contribute more to the burning of insulators. Such a condition is possible because heat conductivity rates depend on definite intervals. If heat energy is transferred to an insulator from the burning gases faster than the insulator can conduct it to the plug base between the time that the exhaust gases leave and the next power stroke starts, the insulator will overheat.

An insulator's heat conductivity is greatly hampered by the poor conductivity of porcelain and the many ceramics of which they are made. In order to offset this characteristic, insulators are shortened to produce a colder plug and are lengthened to produce a hotter one. Obviously, the longer insulator will require the heat energy to travel farther so less will be carried away to the base of the plug. Conversely, the shorter the insulator the less distance the heat must travel to the base so the plug will be kept cooler.

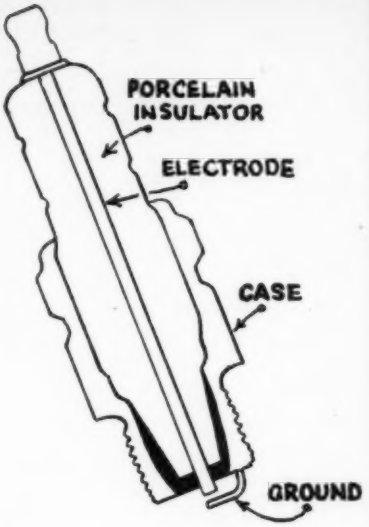


The cooling ability of the spark plug insulator depends on its length and, in turn, determines the plug's heat range. The insulator portion of the plug sketched at the left indicates the plug to be of the cold type. The center sketch denotes a plug of the type midway between the two extremes and the plug at the right with a long insulator would be the hottest of the three.

It's the shortness of insulators that causes most of the trouble with cold plugs. A short path of soot offers much less electrical resistance than a long path so plugs with short insulators are much more apt to miss when a small deposit of soot develops. One manufacturer, the Hastings Company, attempts to eliminate the above condition by varying heat range in another manner. Instead of shortening the insulators, they increase the area of the portion that contacts the base. This system makes it possible to collect much more soot on the insulator before a misfire takes place. Due to heat conductivity limitations of insulator materials, extremely cold plugs cannot be made in this manner.

Conventional spark plug electrodes are another source of pre-ignition in high performance engines. When we say "conventional" we mean the J shaped ground electrodes that are used on the majority of popular plugs. Their location on the end of the plug base places them directly in the path of the combustion flame. This often results in the unattached end becoming red hot. Racing plugs eliminate this tendency by using a side electrode which is placed inside of the base. Such a practice produces a twofold advantage inasmuch as the electrode is removed from the flame path and its shortened length leaves less distance for the heat to travel for its cooling. The Hastings Company has applied this same principal to their standard line of automotive plugs—even going one step better—they use *two* ground electrodes. This arrangement reduces electrode erosion considerably.

A few months ago we received a letter suggesting filing the spark plug electrodes to sharp points to improve performance. This suggestion was doubtlessly an outgrowth of the knowledge that a spark will jump between two sharp points easier than between rounded surfaces. The sharp point idea would be fine if the only problem surrounding spark plugs were those of an electrical nature. Being that heat dissipation is the real difficulty, the sharp point theory would produce glow plugs for even the most feeble passenger car. Of course, not to be neglected is the amount that the plug gap would increase as the sharp points were burned away.



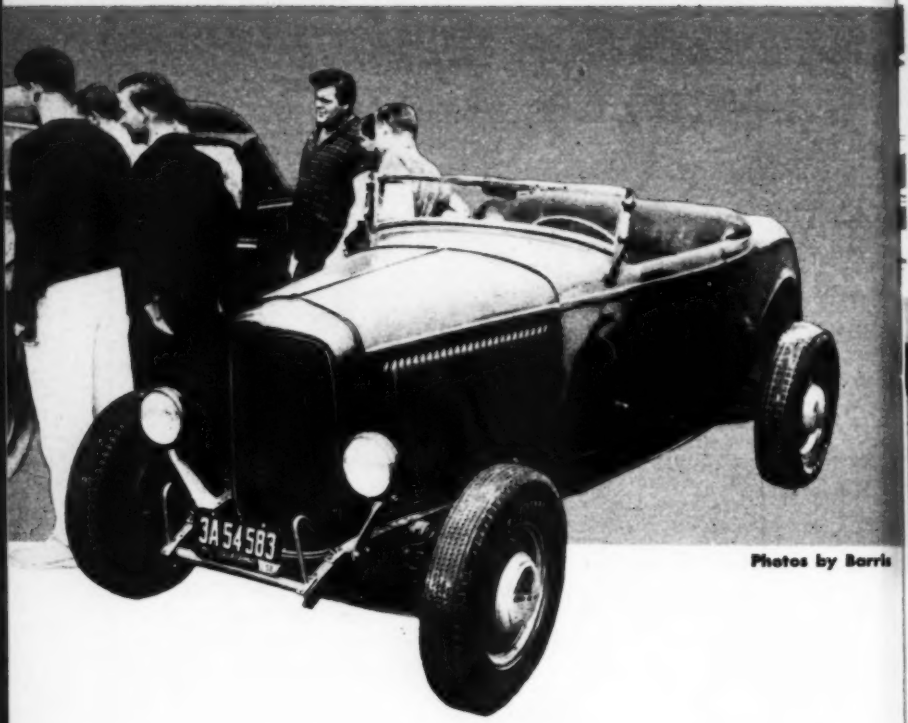
Drawing above shows a cutaway of a spark plug.

When you buy your next set of plugs for the family bus you won't have all of the foregoing problems to worry about—thanks to the engineers and test departments, but you may have a little deeper appreciation of those little gadgets—Your Spark Plugs.

The heat range principal of a spark plug can be best described as depending on the length of the lower segment of the insulator. The arrows in the above drawing show the paths of heat flow from two plugs having different heat ranges. Plug at left is of the hot type while right plug is cold.

THIS MONTH'S COVER

Photographer Poole managed to capture Luana Patten and Bob Borst discussing the merits of Bob's Chevy in the rustic surroundings provided by the fabulous Descanso Gardens. Miss Patten calls Burbank, Calif., her home while the car hails from the nearby Montrose area. This clean little Chevy is on page 26 of this month's ROD & CUSTOM.



Photos by Barris

More than local interest is shown in this . . .

High School AUTO SHOW

WITH HIGH School Auto Shows on the increase, lately, we thought we'd drop in on one and watch the proceedings. The one we selected was held recently at the South Gate (Calif.) High School and was a suitable example of a fast-growing fad. Last year saw a few of these shows and they met with such overwhelming success and popularity that many more schools followed suit this year and a considerable number are planning identical events for next year.

At present, arrangements are underway for over-all champions in each of the judged classes to be chosen at one large show next year. In this grand, climatic event, all of the winners of the individual school shows would be displayed and the overall winners chosen by a competent panel of judges.

The South Gate High School Show was originally instigated by two of the school's seniors — Bob Howard and Greg Taylor. To assist them in the planning of the event they arranged for the help of the local Exchange Club. Together, they really went all out to see that the show was given proper publicity and that more than local interest in the event was stirred up. The Exchange Club also arranged for a group of judges, and

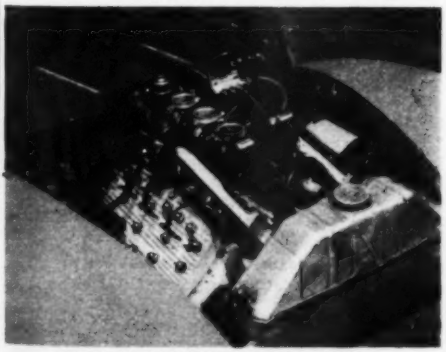
these included the President of the Exchange Club, a representative of a nearby Chevrolet dealership, a Studebaker dealer and an officer from the city Driver Education Dept.

The judges selected winners from each of the three classes. The groups open for consideration were: a stock car class, a custom car division and one for competition cars. Decisions were based on workmanship, originality of ideas and general, over-all appearance. Additional awards were presented to cars with outstanding interiors, beautiful (as well as outstandingly functional) engines and for general body restoration.

From among the various cars owned by the school's 1700 students, 76 were on display at the show that was held during a Saturday morning.

To highlight the show a tire pumping contest was held with girls working in groups of two. Tires were deflated and race was to see which team could inflate the tires in the least time.

To highlight the day's events, a special tire pumping contest was held with girls working in groups of two. The air was let out of the right front tires of a number of cars and the selected girls were required to pump them up to full inflation in the quickest possible time. The event, which caused a good many laughs, was won by Maxine Merrill and Priscilla Precon.



Potent engine in '39 coupe was awarded trophy for best engine. Car is owned by Leo Saporito.

Some of the cars lined up for judging on the school football field. There were 76 entries in participation and were divided among three major classes: stock, custom and competition.

A trophy for the cleanest stock car was given to Joe Galbreth for the immaculate condition in which he kept his '48 Chevrolet. The best looking custom was a '49 Mercury four door sedan owned by Bill Bush who proudly accepted his prize. A beautiful little '34 Ford coupe won the competition division and also the grand sweepstakes. The car is owned by Don Cassidy. The award for the best looking and the most potent engine went to Leo Saporito for the mill in his '39 Ford coupe.

One of the most interesting cars on display, though it did not compete in any particular class, was an immaculately restored '26 Oldsmobile put on display by Jack Taylor.

Other awards were given to Dave Chaves for the interior of his '50 Kaiser and to Dave Boiselle for the original paint job on his '41 Plymouth.

With this event more or less setting a standard pattern, it is hoped that next year will see more school-instigated shows. If local car clubs and associations can make their schools see it their way, this thing may, eventually, grow into something nationwide.

Don Cassidy, winner of competition class, with his trophy. His '34 coupe also won sweepstakes.

FIVE WAYS TO POWER

Your engine's ignition

By Fred Fisher

PART IV

IGNITION systems are given little thought in these days of dependable automobile engines. Most of us don't bother to give them even routine care. Fortunately, the engineers who designed today's ignition components have realized that car owners tend to be forgetful when it comes to care and maintenance of the systems necessary to the operation of the machine.

Basically, your engine's ignition system consists of a coil, a condenser, breaker points and a distributor to deliver the spark to the plugs at the proper time during the internal combustion cycle.

No battery current flows to the primary windings of the coil when the points are held open by the action of the distributor cam. As the lobe of the cam passes by the fiber rubbing block of the breaker points, the points are permitted to close and are assisted by a spring, which helps the points to correctly follow the cam action as engine speeds increase. Current then flows to the primary winding of the coil, setting up electromotive forces in the iron core of the coil and creating a flux or flow pattern in the core. Simply stated, a magnetic field is produced. When the breaker points open, the primary circuit is grounded, and the magnetic field collapses creating a high voltage in the secondary winding of the coil. By electrical laws, the faster we can decrease the magnetic field (cause a reversal of the flux in the core) the more voltage that will be induced in the secondary winding. Unfortunately, electricity has its own inertia caused by the flywheel effect of the iron core, which tends to keep current in the primary coil flowing in the same direction by self-inductance. This slows the rate at which the magnetic field collapses by causing arcing at the breaker points. Complete collapse of the magnetic field is necessary to get maximum output from the coil. For this reason, a condenser is placed in the primary circuit to prevent arcing at the points and thereby provide an immediate and complete collapse of the magnetic field.

Secondary voltage is transmitted through high tension wires to the center terminal of the distributor cap, or to the terminal supplying the rotor, which turns at half the engine speed the same as does the breaker cam. The rotor directs the secondary voltage or spark through a finger across an air gap to the terminals imbedded in the plastic of the distributor cap. Spark plug wires are connected to these terminals.

To prevent damage to the primary winding of the coil when the engine is running slowly, or when the ignition is turned on and the engine is not running, ballast coils are provided in the internal construction of the coil to keep the primary voltage at a reasonably safe value.

As if these functions were not enough for the system, it must also provide a means of advancing and retarding the spark to suit varying speeds and engine loading. By oversimplifying, we can say that the spark must be retarded to approximately top dead center (TDC) for starting purposes, and then be advanced to a maximum value of approximately 20 to 30 degrees *before* TDC as engine speed increases to around 3200 RPM. (This varies, of course, with different engines.) As engine loading increases, the spark must be retarded to insure smooth operation without detonation. To properly perform these functions, most distributors are equipped with either of two types of advance mechanisms. One is a mechanical type providing advance of the breaker cam by means of counterweights which advance the spark smoothly through a predetermined advance as speed increases. The other uses manifold or carburetor vacuum to advance or retard the spark in accordance with the load placed on the engine.

Ignition system operation is more thoroughly explained in automotive electrical books which devote entire chapters to each of the components that we have already mentioned. For the basic idea, though, these brief explanations will serve the purpose.

Consider, for a moment, the fact that at normal cruising speeds of around 60 mph (about 3000 RPM) your eight cylinder engine ignition system provides 12,000 sparks per minute or 720,000 sparks every hour, and

it performs this task month after month with little or no attention except for an occasional set of points. Usually you give no attention to your ignition system until it causes your engine to give poor performance. As auto engines have become more powerful during the past few years, owners of cars with high performance stock, or converted, engines are finding that they have to devote more time and money to the proper care and upkeep of their ignitions if they want continued peak performance and gasoline mileage.

Higher compression ratios have caused all of us to consider ignition systems more carefully, since high compression demands more than mediocre performance if the engine is to function properly. Spark plugs must be replaced more often, coils must supply more voltage and distributors must be designed to provide for maximum coil saturation.

Perhaps most of ROD & CUSTOM'S readers have never experienced ignition difficulties from their stock engines, but chances are that they have become well acquainted with them once they have hopped up or reworked their engines.

When you add more power to an engine by one method, quite often another component will not handle the load and actually slow the engine down. Often, dual carburetors are installed on an engine and shortly thereafter the engine begins to misfire. This will occur sooner if the compression has been raised. The neophyte hop-up artist immediately has the answer! Those lousy dual carburetors are causing all the trouble and therefore speed equipment of any kind is no good and he's certainly going to tell all his friends about it before they waste their money, too. You know the rest—it's deals such as this that have alienated whole areas against the wonderful fun and sport to be had from making the stock automobile engine trot out more horses from the stable.

Quite often misfiring will be caused by worn out spark plugs or badly pitted breaker points. More often the ignition system is not able to cope with the demands of high speed and greater loads.

The distributor, coil and condenser of your automobile engine was designed to give acceptable performance at speeds not exceeding 4000 RPM. When you add speed equipment to your engine and end up with an outfit that will turn well over 6000 RPM in low and second gear, you are going to have to do something about the ignition or rough running and misfiring is going to be the inevitable result.

Obviously, the only time the coil has a chance to build up the magnetic field is during the short time that the breaker points are closed. This is referred to in degrees of dwell or coil saturation time. As engine speed increases, this interval decreases, (1/200th second at 3000 RPM, 1/400th second at 6000 RPM) and the primary current is allowed increasingly less time for building up the magnetic field on which secondary output depends. Thus the spark is weakened as speed increases.

Several methods can be used to modify the distributor of your Rod or Custom engine so that this coil saturation time will be increased. Simplest is the installation of a dual breaker point plate (averaging about $6.95 to $14.00) with the points so positioned that they overlap and provide additional dwell. These are the well known dual point sets, of which Mallory is the foremost, with others available. The Dyna-Flite unit is also quite well made. Crawford makes a dual point set-up for Auto-Lite distributors.

While this type of improvement to the ignition will work well with a stock or mildly converted engine, it will not get the job done for a really hot road job or all-out racing engine. Therefore, we'll have to look for something a bit more potent. Mallory has attempted to do this with their Mag-Spark transformer (approximately $22.00) which is used in conjunction with a Mallory distributor (average cost $42.00) to provide better high speed sparking characteristics. This transformer, as it is called, is superior to a coil in many respects and will probably provide all the spark you'll need for a hot engine conversion. As yet, these are fairly new to us and we cannot give any actual test results from their use.

The dual-point, dual-coil distributors in widespread use in hot road engines and in racing engines are fairly new to the automotive industry but were originally developed in Southern California when the Ford V-8 engine began becoming popular for racing conversions. Several individuals in this area devised ways of converting stock automotive distributors that would turn up fantastic RPM's without misfiring.

Foremost of the pioneers in the field of ignition conversions was Tom Spalding whose shop is now in South Pasadena, Calif. Since the ignition business has seen dozens of others come and go and Tom remains, there must be a good reason why he is still the outstanding source of dual-coil, dual-point distributors for all types of engines.

The dual coil set-up is made possible by synchronizing two sets of points actuated by half as many lobes as the engine has cylinders. Thus, a six cylinder dual coil distributor cam has only three lobes, and that for an eight cylinder engine will have four lobes. The points are arranged, and the rotors designed, so that each set (consisting of a coil, condenser and breaker points) acts for half the cylinders. This doubles the time interval available for coil saturation. In effect, these distributors allow the same coil saturation at 6000 RPM as would be available from a single coil, single point type at 3000 RPM.

In order to utilize the two coils, and the two sets of breaker points, the condensers are moved to the exterior of the distributor body, an additional secondary terminal is provided in the cap, and the rotor is reworked or replaced to provide two separate circuits. These rotors usually utilize carbon brushes to pick up the voltage, and deliver it to the spark plug terminals in the cap. In the case of some Ford V-8 and Mercury distributors (for models up to and including 1948's) two separate rotors and distributor caps are used instead of one.

Recently Harman & Collins has developed a dual point distributor for Ford V-8 and Mercury engines through 1948 models (around $35.00 less coils). This promises to be a good reliable unit also.

Some coils, especially those used on Ford products, are designed to operate on voltage less than that supplied by the car's battery. To drop this voltage to the required value, resistances are inserted in the wiring on the primary side of the coil. In some instances these are mounted on the coil, in others they will be found under the dashboard. If you plan to use a pair of Ford coils in conjunction with a dual coil distributor, a pair of resistances will be needed — one for each coil. It is important that each coil have its own separate resistance unit or neither coil will receive enough voltage for proper operation. It is interesting to note that the Ford 1GA-12024 coil is as powerful as any you can buy on today's market, and therefore they are a good choice for a hopped up ignition system.

Surprisingly enough, the ignition makers of Southern California usually cannot keep up with the demand for their high quality products. These units require precision assembly not adaptable to assembly line techniques.

The coming of the overhead valve V-8 engines has brought about a definite trend toward the addition of higher performance ignition systems by the general public. While the designers of these distributors and coils have done their best by redesigning the caps and interiors of their distributors, these still fall far short of the performance available from a dual coil, dual point converted ignition. For instance, over 50% of the total ignition production by Spalding is now for OHV engines such as the Cadillac, Chrysler, Dodge, DeSoto, Oldsmobile and Lincoln engines. If you own one of these cars and want more performance, smoother idling and increased point life, you'll do well to seriously consider the installation of one of these converted units.

Our next and final article in this Five Ways To Power series will cover special camshafts and some interesting and informative data on their installation.

our readers' customs . . .

BLACK BEAUTY

All the body work on my '51 Chevrolet Club Coupe was done by Roy Prewitt of Bell Gardens, Calif. The hood has been shaved and a '50 Chevy fender molding has been used as a bull nose. The headlights are frenched and the front has been lowered by chopping the coil springs four inches. The doors are push button operated.

The deck lid has been filled and is now opened by an electric solenoid. The stock taillights were replaced with those from a '51 Pontiac and the gas filler pipe has been moved inside the trunk. The engine is stock now but has a milled head and dual pipes. The car is finished off with a hand rubbed black lacquer job.

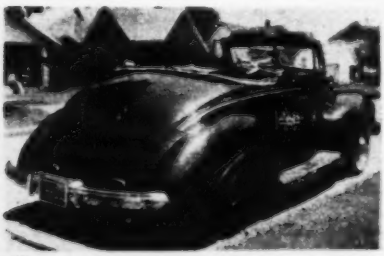
Jack Davis — San Jose, Calif.

OKLAHOMA FORD

Here is a picture of my Swift Red '40 Ford convertible. The hood, trunk, gas cap and taillights have been molded in. The rear bumper is from a '46 Ford while the taillights are '48 Chevy.

I certainly enjoy your new magazine, ROD & CUSTOM.

Carl Nagel — Edmond, Okla.



HIGH SCHOOL CUSTOM

Enclosed please find a photo of my '35 Ford. The headlights have been moved forward four inches and lowered four inches. The spare tire has been removed and the deck filled in. The trunk is opened from inside the car with a pull cable set up. 1941

Chevy taillights are set into the deck and the license plate is set on the rear bumper between '41 Merc. guards. All the body work was done in the High School Auto Shop. The color is purple lacquer.

Roy Elm — Fresno, Calif.

SATISFIED READER'S CUSTOM

I just purchased a copy of your new magazine and found it very enjoyable. It deals with my favorite subject, Rods and Customs.

I liked the editorial in the June issue because I own a restyled car and have been stopped by the police several times. Once I was stopped for having chrome headlight shields while the guys around here with their gook wagons get away with them. The cus-

tom car here in Southern Mass. is really watched by the police department.

The metal work on my car includes a dechromed hood and deck, the hood side panels are filled, the running boards are removed, dual pipes run through the fenders and I have added fender skirts. The grille is from a '41 Chevy. The color of the car is a dark metallic blue.

Hope you folks keep up the good coverage of the hot rod and custom field.
Douglas Dakin No. Rochester, Mass.
• *We'll try, Doug.*

OLDS CUSTOM FROM ILL.

I just started working on my '49 Oldsmobile about a month ago. The hood has been shaved and a hand formed grille has been added. The rear of the car has been leaded in and I have used a continental spare tire. The car also has dual pipes and has been lowered.

Now, I have a problem. What kind of a top should I add? I would like to see more pictures of Oldsmobiles to get a better idea of what to do. I'm sure there are others who will agree with me.
Ron Kohl Clarendon Hills, Ill.
• *Yes, there certainly are. Why not use a Holiday Coupe top but make it still convertible? If not, try a padded Carson type top.*

POTATO STATE CUSTOM

I am sending you a picture of my car which I hope will prove that we have more than sagebrush, snow and potatoes up here in Idaho.

My car is a '49 Chevrolet 2-door. Starting from the front, the hood has been shaved. The original grille has been replaced with a '50 Mercury grille shell that was molded to the body. The front gravel deflector was also frenched to the fenders. The grille bar is the center bar of a '51 Oldsmobile. The headlights have been frenched using '52 Ford headlight rims.

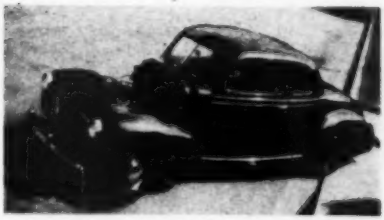
The chrome has been removed from the side of the car and from the rear fenders and the holes filled. The deck lid hardware has been taken off and the lid is now opened by the use of an electric solenoid. The license plate was moved down to the bumper. The stock Chevy taillights were taken off and

the holes filled and at the same time the rear fenders were built up and now have '52 Packard lights set into them. The car was finished off with a metallic green lacquer paint job.

There are seven or eight customs around here but mine is the only Chevy.
Roger Wonenberg Filer, Idaho

A GOING STUDEBAKER

Here is a snapshot of my Stude Champ. It has a Weiand head and manifold with two Stromberg 97 carburetors. The cam is a Weber F2, it has Mallory ignition, a chopped flywheel, special clutch and John-



son racing pistons. The car was clocked at 110.32 at El Mirage dry lake. I would like to hear from anyone else working on a '40 Studebaker Champ.
Bill Engelke Montebello, Calif.

A MERC. FROM RENO

Not especially the best but one of the very few customs here in the gambling city of Reno, my car draws a lot of attention from tourists as well as local citizens. The top has been chopped three inches, most of the chrome has been removed and the doors are push button operated. The headlights, parking lights and taillights have all been frenched. I installed a floating bar grille and molded the hood and deck lid. The deck is operated by an electric screwjack. Since the picture was taken I have painted the car

(Continued on Page 66)

ACCESSORY Installation

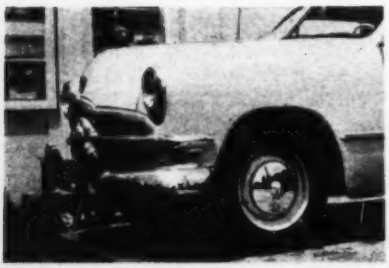
Lowering the front end of your car . . . the right way

Photos by Poole

TO FULFILL our Accessory Installation assignment this month, we went out to the Valley Custom Shop in Burbank, Calif. There had been rumors circulating around about a new front end lowering kit the shop planned to put on the market so we thought we'd drop in and have a look-see.

The theory behind the lowering kit is quite simple and foolproof. To be used only on cars with individual coil suspension in the front, the spindle supporting arm is raised, therefore dropping the car a like amount. This is done by adding an extension to the *outer* end of the *lower* A-arm and raising the *inner* end of the *upper* A-arm so that the two A-arms will have the same relationship as before. The advantages are many: there is no need to alter the coil spring in any way, proper front end alignment is kept within its stock limits of adjustment, the car will not "bottom" since all parts have the same relationship as they did before and, last but not least, the units may be removed and used on another car of similar make.

The Ford before any work was begun on front end. Car belongs to Joe Goss of Valley Custom.



Before any work can be started on the car it is first necessary to raise the car, place stands under the frame and remove two front wheels.

Before we run through the installation on a particular car, let's take a look at the kits that are offered and see just what they include. The first kit consists of bolt-on parts and will fit '49-'53 Fords and '52-'53 Mercurys. The second kit requires welding and precise fitting of parts but is universally adaptable to Chevrolets, Studebakers, Oldsmobiles, etc. The first kit is the one we are dealing with this month because of its popularity. It consists of all the necessary parts and they are pre-fitted so require no drilling of holes or forceful fitting. Necessary nuts and bolts as well as easy to follow instructions also accompany each kit.

We watched Joe Goss lower the front of a '50 Ford so we could follow the various steps in their logical sequence. He warned

The lower spindle adaptor as it is positioned on the outer end of the lower A-arm. The lower spindle pivot is raised, so car becomes lower.

us, before he started, that the whole operation is a little time consuming but there is nothing necessarily complicated about the installation. It can be accomplished quite easily by the novice in a little over three hours but it does involve the use of quite an array of tools.

The first step includes jacking up the car and removing the two front wheels. The jack (preferably a floor-type hydraulic jack, not a bumper jack) should be positioned so as to contact the front crossmember and raised

The inner pivot point of the upper A-arm must be raised so spacers are provided in the kit. The arrow points to one of the three spacers.

until the two front wheels are lifted clear of the ground. With the car thus raised, two stands or blocks should be placed under the frame directly below the body cowl section. Let the jack down until the car rests on the two supports. The jack may now be repositioned directly under either of the lower A-arms. With the car resting on the supports the front end is easily accessible and leaves the jack free to be used on either side of the car individually.

With the jack under the lower A-arm, it must be raised until the A-arm is parallel to the ground. Disconnect the front stabilizer bar where it is secured to the A-arm by removing both the inner and outer clamps.

Near the outer end of the lower A-arm is a steel pad that both reinforces the A-arm and provides a seat for the rubber contact

bumper. This pad must be removed and, since it is riveted into place, a cold chisel or cutting torch must be brought into play or the rivets drilled out.

The next operation is the disconnecting of the lower A-arm from the spindle support by removing the bolt that provides the pivot point. Loosen the nut that secures the shock absorber at its upper mounting point. Release the jack until the lower A-arm hangs free. Since the *inner* pivot of the *upper* A-arm must be raised an amount closely approximating the distance that the *outer* end

(Continued on Page 63)

The upper A-arm spacers (top arrow) and new spindle adaptor (lower arrow) are both shown in this complete installation. Job took 3 hours.

Photos by Poole

A Winner

by a hair's breadth

THE OWNER of a good looking, kustomized car doesn't necessarily have to own several oil wells or have a controlling interest in the U. S. Mint. He can be an ordinary person with an ordinary job and with no special talents or resources. To prove our point, look at the Mercury on these pages.

It belongs to Bill Bush, a teen-ager who, at present, is a student at the South Gate High School. At a recent school Auto Show, Bill's Mercury was judged the best custom over all the other cars in the school show. But . . . he almost didn't make it.

Bill, who is a star football player in his own right, worked during his off hours in order to accumulate enough of that green folding stuff (sometimes referred to as money) to pay for the work done to his car.

The Merc., restyled by Barris Kustom Shop, has received a great deal of modification but still retains the original Mercury lines. The grille is composed of parts of '53 Plymouth bars and the bars and parking lights from a Henry J.

The ornaments and medallions were removed from the hood and the holes leaded in. The corners of the hood were rounded off to give the car a better over-all symmetry. Using headlight rims from a '53 Ford, the Merc. headlights were frenched. Because the rims extended beyond the bulb units ap-

Owner Bill Bush stands beside his Barris-ized Mercury holding the trophy that he was awarded at the recent South Gate High School Auto Show.

Mercury grille was removed and replaced with a combination of Plymouth and Henry J bars. The grille shell and fenders have been joined into one solid unit. Corners of hood are rounded.

proximately two inches, a chrome insert was added to fill the inner gap. Frontal alterations were concluded by molding the gravel deflector to the fenders and by welding the front fenders and grille shell into one, solid unit.

The corners of the four doors have been rounded similar to the method used on the hood. To many, this may seem like overdoing a good thing but it's the attention to details such as these that cause the distinction between a champion and a run-of-the-mill custom.

The door handles have all been removed and the holes filled. The two front doors are electrically operated while the rear doors can only be opened from the inside using the original handles. The door glasses are raised and lowered automatically by Barris's window lifts. (See Accessory Installation, R & C for August.)

Among the outstanding features of the rear of the car are the specially made, rectangularly shaped exhaust tips that protrude through the bumper and the taillights set into the vertical bumper guards. Immediately above the deck lid is mounted the radio aerial. It is vacuum operated by a switch mounted on the dashboard. The deck lid hardware has been removed and the resulting holes filled. The lid is operated electrically by a solenoid actuated latch mechanism. The gasoline fill pipe, formerly housed in the left rear fender, has been repositioned inside the deck lid and the hole in the fender molded over.

Special, oval exhaust tips protruding through bumper can be seen in this detail photograph. Note that taillights are set in upright guards.

Four-door sedan interior has been reupholstered in light tan and maroon leatherette both rolled and pleated. Even headliner is tan leatherette.

The car was completed by lowering it, front and rear, and by the addition of a beautiful Tingia Maroon lacquer paint job.

The interior is done in contrasting shades of tan and maroon Naugahyde that is both pleated and rolled. The headliner has been similarly treated but with horizontal beading.

Soon after the car was delivered to the proud owner, it was damaged in an unavoidable accident. This unfortunate occurrence resulted in a great amount of reworking on the part of the Kustom Shop. It was, however, re-completed just in the nick of time and appeared in the show as scheduled.

10 STEPS TO CUSTOMIZING

(Continued from page 25)

treated in the same manner without shortening the rear end. Chevys, both two-doors and convertibles, in the '49 to '52 models make wonderful customizing material. The possibilities are tremendous and the finished result extremely gratifying.

Watch for the fourth step of the Ten Steps To Customizing in the October issue of ROD & CUSTOM Magazine. Link's Custom Shop foreman, Orin Tramz, will discuss welding, leading and brazing. He will point out many little handy tips that he has picked up during his twenty years as a body man. He will also tell you the importance of, and how to attain, the proper alignment of body components during such radical restyling operations as chopping, channeling and sectioning. If jobs such as these are a little beyond your capabilities, Orin will explain in detail the reasonably simple operations connected with filling the smallest hole and smoothing off the area preparatory to painting.

200 MPH CLUB

This year, at the 1953 Bonneville Nationals Speed Trials, the five members of the most exclusive racing club in the world will gather again to compete. These men, members of the 200 MPH Club, are at present considered to be the leaders in the fast moving sport, amateur straight-a-way racing. Until now they have received nothing in the way of recompense except an occasional pat on the back by the press.

They have earned the respect of the multitude of Hop UP enthusiasts and now Hop Up and Motor Life Magazine has found a way to repay these men a little for all they have contributed to the sport. Repay, not only in the assurance that they will be recognized throughout the world as the speed kings of America, but with a bit of material assistance while they compete again this year at Bonneville Salt Flats.

Hop Up and Motor Life and the Rollohome Corporation of Marshfield, Wis. have combined their efforts in attempting to make this years stay on the salt a comfortable and pleasant one.

Mac Matthews and Frey of Rollohome are sending a 35 foot mobile home to the Salt Flats for the exclusive use of the 200 MPH Club members and their guests.

The magazine will equip the mobile home with music, cold drinks and a complete buffet and anything else that they can think of in the meantime to make the men comfortable.

(Continued on Page 64)

VARIETY MART

These readers have taken advantage of this space, why don't you? Surely you must have an item that you no longer need or maybe you are lacking a single engine part and can't find one anywhere. Write out an ad, in 25 words or less not including your name and address, and drop it into an envelope together with a single dollar bill and mail it to ROD & CUSTOM, 530 W. Colorado Blvd., Glendale 4, Calif. We'll do the rest. Remember, only a single car to an ad and NO COMMERCIAL ADVERTISERS, PLEASE.

SELL. Good, stock '27 Ford T Coupe. Dependable performer, in daily use. $100. Warford T gearshift transmission and other parts. Pictures or information on request. P. G. Mills, RR #3, Cadillac, Mich.

SELL. 1949 Ford convertible. Black, white top, sidewalls, custom seatcovers, overdrive, radio, heater, Edelbrock manifold, Belond exhaust system, Mallory coil, points. Pictures on req. $1350. G. Zetzer, 2630 Shaker Rd., Cleveland Heights 18, O.

WANTED. New, or like new, front fenders for Ford A sedan with or without wheel well. Also, information on any overhead valve setup for A. E. Dale Harris, 4116 Tazewell Pike, Knoxville 13, Tennessee.

SELL. Bermuda carriage bell, new. $5.00 postpaid. STORY OF A STANLEY STEAMER. 2 copies. 250 pages. Hardbound. $3.00 each postpaid. Thomas C. Murray, 301 Ridgeway Ave., Rochester 13, New York.

SELL OR TRADE. Marquette model 230 portable spot welder. New, never connected. Want Ford V-8 speed equipment or $75.00. D. L. Brown, 90 Elkwood Ave., Asheville, North Carolina.

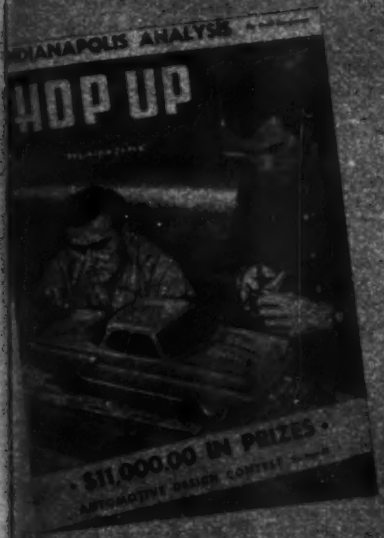
SWAP. 1952 Plymouth 2-door for rod or street roadster and cash or for '50 dechromed and customized Olds 88 coupe or 2-door. Don McEwen, Box 11, Kimberly Falls, Idaho.

FOR SALE. Triumph 1800 series — engine, transmission, all accessories mounted on panel. Complete, $175.00. Guy Thomajan, 38 Ave. S, Brooklyn, New York.

FOR SALE. 1930 Buick Six Roadster. Body perfect, engine running but need repairs. Side mounted wire wheels and rumble seat. $200.00 or trade for Ford coupe. Perry L. Swygert, Box 205, Joanna, South Carolina. Phone — 4441.

DON'T MISS IT!

THE SPECIAL CONTEST
ISSUE OF HOP UP



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Read about

- AUTOMOTIVE DESIGN CONTEST
  $11,000 IN PRIZES
- INDIANAPOLIS ANALYSIS
- 200 MPH CLUB
  PLUS MANY OTHER FEATURES

Technical Tips

WHAT TO DO TO A '41

I have a '41 Ford tudor sedan that I would like to customize. My problem is: what changes should I make in the body, the fenders, the hood, the grille and the deck lid? Also, what bumpers, other than the stock ones, would look best? How about taillights? If you will be able to answer these questions I will appreciate it very much.

Norman Weyer — Bremerton, Wash.

• *About the best way to answer all of your questions at once, Norm, is to refer you to the "Four Foot Kustom" featured in the August issue.* *Tech. Ed.*

EXHAUST NOISES

I own a 1950 Ford V-8 and have installed dual pipes on it. I did not use headers. From inside the car I can hear an objectionable ticking sound as the exhaust passes through the pipes and mufflers. What can I do to stop this?

Allan Hedberg — Ashtabula, Ohio

P.S. How far can I lower my car without it hitting bottom on bad bumps?

• *Undersealing the underside of your car and the firewall would help in lessening the exhaust sound that you hear from inside the car. I would, though, first check the system carefully to see that there are no leaks. Dual pipes without headers shouldn't make excessive sound.*

As for lowering your car — I wouldn't recommend using over two inch lowering blocks. The roads are pretty rough out your way, I hear. *Tech. Ed.*

CHOPPED TOP COST

How much would it cost to chop a '41 Ford convertible four inches and have a padded top built to replace the stock top?

Bob Osborn — Los Angeles, Calif.

• *Chopping your top the amount you mention would probably run you in the neighborhood of $150.00. Remember, the windwings and door glasses have to be cut as does the metal frame which has to be rechromed. A padded top will set you back about $175.00 which would make the total around $325.00.* *Tech. Ed.*

SOLENOIDS AGAIN

May I compliment you and your staff on an excellent magazine, it is really great!

In this section of Florida custom cars are rare, while rods are practically non-existent. By the time you receive this letter my '49 Ford will be in the shop receiving a few modifications. My plans call for solenoid operated doors but I can't find out just what solenoid I should use.

James R. Cassels — Arcadia, Fla.

• *The most popularly used solenoid for operating handleless doors is solenoid number 1118019. This is the Delco Remy part number which indicates that it is a General Motors part. Actually it is a Buick starter solenoid so would be available from your Buick dealer or from a United Motors dealer.* *Tech. Ed.*

MORE ABOUT LOWERING

I think I have hit upon a new way to lower a car with transverse springs (those used on Fords built prior to 1949). Why couldn't the longest, or main, leaf be shortened and the arch taken out of it? The shorter leaves could also be flattened and when the spring was installed in the car it would lower it by as much as the spring was dearched. How about it, will it work?

Gary Jenkins — Bakersfield, Calif.

• *That is a good idea, Gary, so good in fact that it has been popular for a good many years. In actual practice the main leaf does not have to be shortened since the dearching process will not lengthen the leaf enough to cause it to come in contact with the spring perches.* *Tech. Ed.*

WEIGHT QUESTION

To settle a little argument with a friend of mine, could you please tell me the weights of '49 Fords and Mercurys? We are trying to establish a comparison of horsepower to weight ratio for our cars.

Donald Vezina — Renfrew, Ont., Canada

• *That is quite a difficult question to answer with a single figure due to the fact that different models would have a different weight. Also, the number of accessories would affect the weight enough to throw your ratio off. However, as an average, the '49 Ford weighs 3100 lbs. while the Merc. weighs, roughly, 3800 lbs.* *Tech. Ed.*

CONVERTIBLE HARDTOP

I have been working on a method of automatically raising and lowering the hard top on my recently constructed fiberglass reproduction of the Buick XP300. So far I have had to resort to manual means. Do you have any information on how this could be accomplished?

Russ Burrows Kenosha, Wisc.

• *Your top can be actuated by either electric, hydraulic or vacuum power. Electric would probably be your best bet so the top could be operated without the engine running. Try using two '41 Ford convertible electric top motors. They have quite a bit of travel and are positive acting enough that the two units wouldn't have to be coupled together. You will have to do quite a bit of experimentation with your linkage since your top probably travels through at least one hundred and eighty degrees.* *Tech. Ed.*

MORE PEP FOR A V-8

I have a '50 Ford V-8 I would like to hop up. Could you tell me how I could get better gas mileage, quicker acceleration and a higher top speed in the easiest, cheapest and quickest way?

Charles Ham Darlington, S. C.

• *The addition of high compression heads and a dual carburetor manifold would be your best bet. The combination should give you all you desire. If this does not fulfill your expectations you may want to go to a good grind cam shaft, but this is where you start running into money and trouble.* *Tech. Ed.*

COLUMN SHIFT PROBLEM

Could you obtain a diagram of the chassis used in the roadster on page 58 of your May issue for me? I would like to know if the stock T frame was used and, if so, what year crossmember was used for the engine installation.

I would like to know how the owner installed the column shift. I am building a T similar to this one and found the shift linkage not adaptable to this year body.

Earl Clair Big Pine, Calif.

• *I am afraid the owner himself doesn't have a diagram of the "Terrific T" described in our May issue. I can only suggest going by the hit-and-miss method with something like this. Almost any early Ford V-8 crossmember could be worked to fit the T frame or else one could be made up from fairly heavy channel iron. Your questioning the crossmember problem would leave one to believe that you do not have your engine installed yet. If you don't, how do you know the linkage couldn't be adapted to fit? Practically anything within reason can be accomplished. To describe an installation like this in so many words is almost an impossibility, so I can only say: "Go to it, Earl; if someone else has done it, why can't you?"* *Tech. Ed.*

'46 OLDS-V-8 CONVERSION

I would like to install an Olds Rocket engine in my '46 Olds model 78. Would the conversion require the use of fabricated motor mounts and will the engine fit under the hood without alteration to the inner fender panels? Also, can I use the old Hydramatic?

My boy friend, who I consider a good mechanic, will do the work but he doubts that the engines are interchangeable.

Grace Frazer Jersey City, N.J.

• *The engine itself would fit under the hood of your Olds 78 but the inner fender panels may need a little reworking. This, however, is not your big problem. The Hydramatic transmission in your car will fit the later engine providing you change your torous cover. However, this earlier Hydramatic is not recommended since the later engine has a good deal more torque. You'd be better off using a '51 or later transmission.* *Tech. Ed.*

WHAT'S NEW?

AND NOW, A LIFETIME BATTERY

Here's a new battery which is, in many respects, years ahead of its time. Called the Lifetime Battery and produced by the Continental Manufacturing Corp., of Culver City, Calif., it develops 15 amperes higher power than other car batteries and carries a 6 year guarantee.

With more and more American cars switching to 12-volt systems, the problem of 12-volt replacement batteries has become increasingly important, and development of a high quality 6 year guarantee American battery in both 6-volt and 12-volt models will be good news for owners of late model

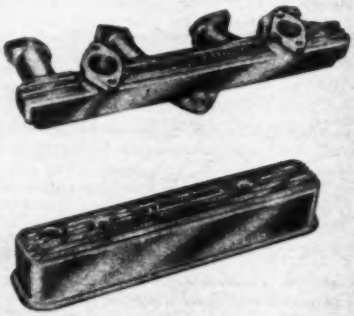
Detroit cars as well as the foreign car enthusiasts who are accustomed to paying $50.00 for imported 12-volt jobs that carry a maximum guarantee of 18 months.

The most dynamic feature of this new battery is its remarkable ability to re-charge itself automatically again and again after being completely discharged.

First marketed in Alaska last winter as a test, the Lifetime Battery is now being made available to U. S. dealers as rapidly as plant facilities can be expanded. Meanwhile, it is available direct from the manufacturer, freight paid, at $29.95 for 6-volt, $34.95 for 12-volt sizes. Write to Continental Mfg. Corp., Dept. P, 10411 West Washington Blvd., Culver City, California.

FORD 6 SPEED EQUIPMENT

To fulfill a long-felt need for speed equipment for the later model Ford 6 engines, Offenhauser has recently come up with a dual carburetor manifold and a polished and



finned aluminum valve cover. As they have done with their other well known equipment, they have tested the manifold exhaustively and found it to tremendously increase the horsepower output of these fine engines. The manifolds are shipped complete with all the necessary gaskets, lines and fittings for engines with either standard or automatic transmissions. The manifolds can be ordered either polished or plain and they sell for just $44.50. The aluminum valve cover is claimed to reduce engine noise and to dissipate the heat faster due to the finned construction. It sells for just $27.50. Both items do not include excise tax.

THE UNI-BOLT STORY

To the great relief of men in the auto body repairing business, the General Items Co., has recently introduced a universal molding T-bolt. As you know, the great majority of the chrome and stainless ornamental and protective strips on our modern automobiles are held in position with the familiar T bolts. The trouble is: as the molding sizes vary in width, so varies the T-bolt. This new universal T-bolt can cause a cut in inventory by as much as 90%. The one size will fit any molding from ½" to 2⅝" wide. The T-head of the bolt opens like a pair of scissors so there is no need to measure or cut anything. Address inquiries to the General Items Co., 515 W. Colorado Blvd., Dept. P, Glendale 4, Calif.

ACCESSORY INSTALLATION

(Continued from Page 55)

of the *lower* A-arm was dropped, the bolts holding the top inner pivot to the frame must be removed so that the spacers included in the kit may be installed. New, longer bolts are provided in the kit to fasten the bracket securely to the frame and they are installed at this time.

The next step includes securing the new lower spindle adaptor to the lower A-arm but it is first necessary to remove the rubber contact bumper from the discarded steel pad and replace it on the new adaptor. With the bumper positioned, the spindle adaptor can be set on the lower A-arm so that the four mounting holes are correctly lined up. Using the bolts provided in the kit, fasten the adaptor to the A-arm using just two of the bolts at the *rear* of the adaptor.

Notice that the kit includes two T shaped brackets marked "right" and "left". Place the proper bracket over the two forward holes of the adaptor making sure that the writing is facing upward. The forward bolts may now be set in position and the four of them tightened securely. A larger bolt (supplied with the kit) can now be run through the outer A-arm hole that formerly provided the pivot point. This locks the adaptor and the lower A-arm together.

Bolt the spindle arm and the spindle adaptor together with the stock Ford spindle bolt. You will notice that this places the pivot point two and a half inches above its former location, thus lowering the car an equal amount.

The only remaining operation is to fasten the front stabilizer bar in position using the T shaped bracket as the outer bushing clamp. Before replacing the wheel, check the bolts to be sure that nothing was left loose and, while you're at it, it's a good idea to go over *all* the front end bolts. They *do* work loose.

Directions included in the kit show the various parts. All are numbered for easy identification.

Simple? You bet! Anyone with the necessary tools can do the job or, if not, a competent wheel alignment shop can do it for you. One of the most important steps, after both sides of the car are lowered, is to have the *wheels re-aligned*. Don't put this off.

The kit described above, for '49-'53 Fords or '52-'53 Mercurys, sells for just $37.50. The fact that all the parts have the same relationship as they did formerly makes this price well worth the cost alone. If you happen to be out Burbank way, Valley will install them on your car for you, and align the front end too, for the reasonable sum of $55.00.

Anyone interested can write to the Valley Custom Shop at 1871 Victory Place, Burbank, Calif. Neil Emory and Clay Jensen, co-owners of the shop, asked us to warn our readers to beware of cheaper imitations since theirs is the only one that will cause the car to have its stock spring travel and retain the stock alignment adjustments within their former limitations.

Difference in ground height of Ford can be seen by comparing this photo to the first one. Valley Custom offers the kits for sale for only $37.50.

CAR CLUB

(Continued from Page 13)

supply stores to find out if one would be willing to grant discounts to any club member purchasing merchandise there. This has been done quite successfully in many cases and should be checked into thoroughly. Quite possibly, the owner or manager of such a store could be voted in as an honorary member of the organization. With this situation existing, many advantages can readily be seen. The members, of course, would be allowed to vote on such a decision.

Reliability runs, tours, picnics, dances or joint gatherings at the homes of various members is a very important part of the social life of the organization. These get-togethers would inspire members to retain their interest in the club.

Limitations should be placed on any member that is apprehended for any traffic violation, whether it be the law enforcement officials or other members that do the apprehending. Penalties could be anything from cancellation of the violator's membership or a mild tongue-lashing, depending on the seriousness of the violation.

Advance notification and publicity should be given the local newspapers before any particularly large club sponsored event. If a reliability run, say, has been decided upon it is quite possible that the public would like to join in. This will serve to prove to civic-minded people that the club is on the up and up and not dedicated to highway non-safety activities. This will not only promote goodwill within the club but will provide a chance for the families of members to be given an insight into the goings-on.

Such popularity will prove to the local police authorities that the members are not just a bunch of speed hounds but are sincerely dedicated to safe driving and the betterment of their social positions. At regular intervals, various local personalities should be invited to attend the weekly meetings to listen in on certain suggestions or to give a short talk concerning some phase of club activity. A lot of civic-minded folk, you know, take a mighty dim view of any organization associated with cars, particularly altered or hopped up cars, so the proper actions of the club and its members are of the greatest importance.

If the club treasury warrants it, a committee should be selected to design a club emblem that can be used on T shirts, jackets, sweaters or plaques for each owner's car. This will give each individual member a sense of unity when attending public functions as well as good notoriety if he should stop to assist some luckless motorist stranded on the highway due to a lack of gasoline or a flat tire.

Most of the items mentioned above are inexpensively priced and are handled by advertisers appearing in ROD & CUSTOM Magazine from time to time.

The theme of the club should be upheld at all times but the most outstanding qualification should be: have a good time!

200 MPH CLUB

(Continued from Page 58)

Tailored gabardine and leather jackets and one dozen Tee shirts will be furnished also by Hop Up.

You too may become a member of this club. All you have to do is drive an automobile at an average speed (two way average) of over 200 miles-per-hour. The speed must be timed by S.C.T.A. or A.A.A. Then you are in and once you are in it's for life. Each year an annual award will be made to the old members as well as the new ones. Present members become eligible by driving in last year's salt event the cars and speeds listed below.

WILLIE YOUNG ..... 244.66 mph.
Kenz-Clymer Motorbook Special
ART CHRISMAN ..... 235.99 mph.
Herbert Cam Special
GEORGE HILL ..... 230.16 mph.
Hill-Davis City of Burbank Special
JOHN (SONNY) ROGERS ..... 224.14 mph.
Chapel's "Tornado" Special
OTTO RYSSMAN ..... 222.57 mph.
Post Special

Speeds listed above are the fastest averaged two way run attained by each man.

TIRES FOR BONNEVILLE!

A new racing tire, capable of withstanding the extreme heat and violent stresses on the wheels of some of America's fastest racing cars at the Bonneville, Utah, salt flats, has been developed by The Firestone Tire and Rubber Co.

Featuring high-abrasive and heat-resisting tread and body compounds developed for the 500 mile Indianapolis racing classic and for jet aircraft at Wright Field, the new racing tires are designed to meet every condition on the sun-baked, salt raceway.

Race drivers, with new cars boasting up to 700 horsepower, will attempt to rewrite the American record book at speeds possibly reaching 300 miles an hour this year. The present American record of 252.10 mph was established September 1, 1952, by Willie Young in the sleek twin V-8 Kenz-Leslie Special.

Jet aircraft, equipped with tires built of the new racing compounds, recently completed 100 successful test takeoffs under Air Force supervision at 250 mph.

For further information regarding the tires, contact ROD & CUSTOM Magazine.

BUILDING A CHEVMOBILE

(Continued from Page 12)

ered Chevy body, it was found, to be sure, that the left head could not be replaced unless some drastic changes were carried out. Somebody suggested moving the engine forward—his funeral was the following day—while someone else suggested the possibility of boring a large diameter hole through the head and rocker arm assembly—we're going to miss these guys!

Once again the rail job began taking shape as the formerly cancelled order for the aircraft engine was reinstated. A junk man was notified that he could haul the scrap iron away as soon as the chassis was cut into manageable lengths and a chrome plater was directed to come and get the U joint and render it suitable for mounting on a plaque to be hung in the chief engineer's den.

One or two bystanders remained looking at the problem scratching their heads apparently seeking a solution. One of them removed two of the three bolts that hold the steering box to the frame and pivoted the whole assembly downward until enough clearance was obtained to assemble the engine. A few hurried measurements were taken and this solution was discarded as being unsuitable since the steering wheel had been dropped to the floor level of the car.

An enterprising young assistant finally hit upon a workable answer much to the chagrin of his elders.

The answer lay in the moving *rearward*, and dropping *downward*, of the steering gear box just an even two inches in each direction. The box is secured to the frame with the three bolts arranged in a triangular pattern. The upper bolt hole in the steering box was moved back and down until it lined up with gram.) A heavy length of angle iron was arc the lower rear hole in the frame. (See diawelded and gusseted below the frame so that two holes could be drilled in it to provide the lower supporting holes.

Naturally, this obviously simple answer would result in many more alterations, especially to the body, than would meet the eye but we'll save that until later.

With the majority of the hard work being done it was only necessary to shorten the emergency brake cables the same amount that the center crossmember had been moved back and to reroute the gas and brake lines. Replacing all the worn bearings, seals and bushings on the chassis completed the job.

Although the above described proceedings could be used as examples for any Chevy-Olds engine switch, the 10½" rearward movement of the engine would not be recommended for the average enthusiast. The pedal problem (omitted here because of limited space) and the radically changed location of the steering would make the installation almost out of the question without drastic alterations to the body. Since the Chevy body in question (now housing quite an array of spiders) will be chopped and modified from one end to the other, the radiator question must also go unanswered. The universal joint and its housing, though, can be quite easily fabricated and could be used as a working example for the building of almost any year Chevmobile.

NEXT MONTH!

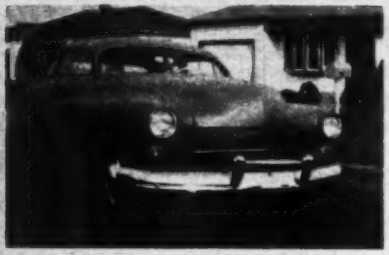
- **BONNEVILLE** — Fabulous new cars
- **BARRIS KORNER** — George carries an idea from the sketch pad to the actual job.
- **10 STEPS TO CUSTOMIZING** — Part four shows you how to lead, braze and fill cracks
- **NORTHERN CALIFORNIA CUSTOMS** — Something new from up north.

RE: COVER CAR — OUR ERROR

Our cover for June included a fine looking little green '32 coupe used exclusively for draggin', remember? The accompanying article inferred that Louis Thompson had *recently* purchased the car. Since then we have discovered that we were badly misinformed as this is far from the truth. Lou bought the car *six* years ago and since then has spent all of his spare time building it up to what it is today. The photo, taken when Lou bought the car, shows its condition at the time. Comparing this with the photos on pages 12-14 of the June issue gives proof of the alterations done by Lou.

READERS CUSTOMS

(Continued from Page 53)



Cadillac Chrystal Green and added white side wall tires.

The dashboard is from a '50 Lincoln but I have not yet had time to work over the upholstery.

The engine has dual pipes with headers, Edelbrock heads and an Offenhauser manifold with a Carter four throat carburetor. Most of the engine accessories are chrome plated. The Ace Custom Shop, here in Reno, did most of the work on the car.

Thomas Innocenti — Reno, Nevada

ANOTHER STUDEBAKER

I haven't seen too many cars in your magazine from Wisconsin so I thought you might be interested in one for a change. It is my '47 Studebaker that I worked over last winter. The car has been dechromed, the grille worked over and the trunk lid restyled. It is finished in two tone with the lower color being '53 Chevy Sungold and the upper being '53 Ford Woodsmoke.

Larry E. Hagen — Chippewa Falls, Wis.

ARIZONA CONVERT.

Here is a photo of my '47 Ford convertible. The hood, deck lid and fenders have all been filled in. The headlights have been frenched and the car is painted a dark metallic green. The engine is stock and the twin pipes extend through the rear bumper.

I plan on going to the East Coast soon and wonder if I'll see any other cars like mine?

Dave Murdough — Phoenix, Arizona

• *Don't know, Dave, maybe and maybe not.*

CORRESPONDENCE

(Continued from Page 7)

CUSTOMIZING PROBLEMS

I am planning to dechrome my 1942 Chevrolet. What I want to know is: how do I go about it? I want to do it myself as a hobby but so far I haven't been able to find out how to lead in the holes.

Tuck Fraley — New Orleans, La.

• *Suggest you follow our Ten Steps To Customizing.*

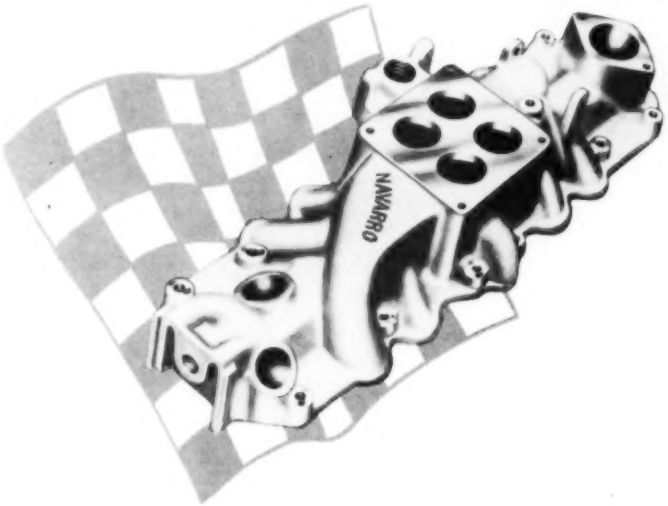
TAILLIGHT QUERY

On page 66 of your June issue there appeared a Tech Tip from a reader who was reprimanded for having taillights set into the rear bumper of his car. In the same issue, on page 17, there is a photo story of a custom '47 Ford convertible. This car has taillights set into the rear bumper, also. Why does one man have to take his taillights out of the bumper but another be allowed to leave them in? The lenses of this Ford don't look like they contain three square inches of reflecting area, either. How come?

Dean Nelson — Brantwood, Wisc.

• *The writer of the letter in Tech Tips apparently used lenses which were non-reflecting, too small and too close to the ground. The owner of the custom '47 Ford has used much larger lenses, possibly as large as six square inches each, and they don't appear to be too close to the ground to be easily recognized from behind. The fact that the lenses are in danger of being broken does not enter into the situation since many production cars have their taillights located in such an area that they could be easily damaged in case of a minor accident.*

THE WINNER!



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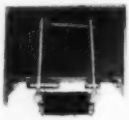

Now, you can have automatic push button windows at a price you can afford. Windows attach to regular window channels. Easily installed on any car with screwdriver. Kit is complete, ready for installation. Only $79.50 per pair, $42.50 single. Specify year, make, model and number of windows desired when ordering.

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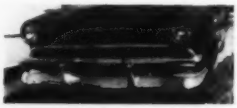
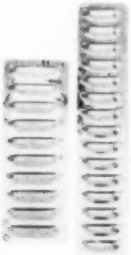


'53 FORD Kustom Kraft Grille Bar

This new grille bar is constructed of 18 gauge metal with a deep luster chrome finish. Easily installed and priced at only $7.95 each.



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